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Holland House Staircase Damaged by Bombing

A conference was held at the R.I.B.A. on Monday, 18 November, to consider the formation of a national organisation to deal with the recording and preservation of war damaged buildings. (*See page* 30.)

CONTENTS

Journal

R.I.B.A. MEMBERS AND EMPLOYMENT

The R.I.B.A. Register contains the names of a very large number of members who have stated in writing that they are in immediate need of employment. The cards of these members have a special mark to ensure that they will receive early and special consideration if opportunities arise.

They have all received repeated requests :

(1) To keep the R.I.B.A. informed of any change of address.

(2) To report at once if their situation has changed and they are no longer seeking employment.

Regular notices have appeared in the Journal on this subject, together with some startling evidence of the way in which many members disregard these obvious precautions. The efforts of the R.I.B.A. to find work for unemployed members are being constantly defeated or made more ineffective by the proceedings of these members.

Recently an opportunity arose for obtaining positions for a large number of members. Great care was taken to select from the list members who appeared to have the qualifications required *and who had all stated that they were in urgent need of employment.*

Eighty-one names were sent in with the recommendation of the R.I.B.A.

The prospective employer wrote to all of them.

The results have just been reported to the R.I.B.A.

32 did not answer the letter sent to them.

18 replied that they were *not* in need of employment.

4 had left the addresses given the R.I.B.A. and the letter failed to reach them.

2 made appointments to interview the employer but did not keep the appointment or send any explanation.

11 refused the appointments offered on the ground that the salary was inadequate, one of them saying that he would not consider less than £1,000 to £1,200 a year.

7 accepted the appointments offered to them.

These figures speak for themselves. We can only appeal once more to members in this position to help us to help them.

BOOKS FOR PRISONERS OF WAR AND MEMBERS SERVING OVERSEAS

The following letter from the librarian was published in the weekly architectural papers. The need for books for prisoners of war is one that *can only be met* through the generosity of architects in this country. In addition, there is urgent need for books for members serving in remote military posts. An Associate and a Student, for instance, are known to us to be in Iceland, one of whom is attempting to study for his Final and to write a thesis on Icelandic architecture. These men cannot be supplied by the normal library service because we cannot send library books to members so far away or living in circumstances which may make it impossible for the books to be returned.

Books for the prisoners of war should go, as the letter requests, to Blackwell's in Oxford ; those for members serving overseas to the R.I.B.A. librarian.

20.11.40

DEAR SIR,—Architect prisoners of war urgently need books on architecture. The R.I.B.A. Library is co-operating with the Prisoners of War Department of the British Red Cross and St. John War Organisation in the supply of books.

We have been told that Oflag VII C/H Camp, with 1,200 officer prisoners, has set up a university with sixteen faculties, of which architecture is one. The profession in England can help these prisoners by providing them with their books. To a certain extent some of their needs can be supplied from surplus R.I.B.A. Library stock, but good, up-to-date books are wanted and not only worn-out copies from the Library, so we must call on the help of all architects in this country to form a really good collection.

We have been asked specially for the following books, and will be glad if any members who have copies to send will send them to Messrs. Blackwell's, Broad Street, Oxford, labelling the parcel clearly " R.I.B.A. books for Prisoners of War," and writing at the same time to the R.I.B.A. Librarian giving a list of the books sent.

Banister Fletcher : *History of Architecture.*
Raymond Unwin : *Town Planning in Practice.*
Samuel Skrimshire : *Land Surveying.*
W. R. Jaggard and F. E. Drury : *Architectural Building Construction.* 3 Vols.
Francis Bond : *Gothic Architecture in England.*
G. T. Clarke : *Mediæval Military Architecture in England.*
J. H. Parker : *An Introduction to the Study of Gothic Architecture.*
W. R. Lethaby : *Architecture.*
Charles Oman : *Castles.*

Gifts should not be confined to the books on the above list, since works of every kind are wanted, including all those on the lists of books recommended to Students sitting for the R.I.B.A. Intermediate and Final Examinations and the Town Planning Diploma. These can be seen at the R.I.B.A. or obtained on request.

Yours faithfully,

EDWARD CARTER,
Librarian

FEES FOR SHELTER WORK

The President discussed with officials of the Home Office the question of fees which should properly be charged for work done in connection with shelters under the A.R.P. Department Circular 110/1939 by architects.

It was agreed that where a total of £2,000 in value was made up by a number of small shelters, varying in size and character, the fees should be based on the shelters as separate contracts, and that they should be increased according to the scale of the R.I.B.A., taking, however, the basic charge as 5 per cent. instead of 6 per cent.

It was also agreed that where more than two copies of the plans were required by local authorities, the extra copies should be paid for in addition to the fee.

AIR RAID DAMAGE

A note was published a short time ago suggesting that members of the R.I.B.A. who were willing to give free advice to very poor house-owners concerning claims for compensation for damaged property should notify the local authorities in whose areas they practised or resided.

It has since been suggested that there is also a class of citizen who, while he would not be justified in asking for or accepting *free* advice, would not normally go to an architect, although he would probably do so if he could obtain advice for a nominal fee.

The War Executive Committee of the Council have considered this suggestion and recommend it to members. The Committee think that members who are prepared to render free service to the very poor or service for a nominal fee to those slightly better off, should give their names to their local Citizens' Advice Bureau, who would no doubt be able to make it known that such advice was available.

ERIC GILL, GUNNAR ASPLUND AND " PONT "

Eric Gill, who died on 16 November, was an artist of great achievement, but to all who knew him he was, first and foremost —Eric Gill ; a man of infinite charm, robust and militant energy, full of exciting contradictions, craftsman philosopher, archaic modernist, social-minded individualist, an eccentric and yet a first-rate collaborator, as those architects who worked with him can testify. His foremost position as a sculptor was perhaps his chief claim to Honorary Associateship, though our memorial of him, which the R.I.B.A. will always possess, is an example of the most enduring side of his work as typographer. The badge on the JOURNAL cover and the brilliant directness of his *Perpetua* type of the cover title are his contributions to not the least distinguished side of the Institute's face to the world.

Another death which we record with regret is that of Gunnar Asplund, the distinguished Swedish architect and R.I.B.A. Honorary Corresponding Member. Asplund represented the finest Swedish modernism—as architect of the great 1930 Stockholm Exhibition he with his friend Gregor Paulsson (Hon. Corresponding Member) were outstandingly responsible for bringing Swedish contemporary art and architecture out of interesting but possibly sterile historicisms into the full battle-front of modern thought and technique. Asplund was a great architect—one of the outstanding men of his country and generation.

Few people knew that " Pont," of *Punch*, was an architect. A friend writes : Graham Laidler, compelled by ill health to give up office life and in consequence architecture, fell back, reluctantly at first, to humorous drawing—who among those in his year at the A.A. will forget his " Esquisse Esquisses " ? After disappointment at first, he had a few drawings accepted by *Punch*, but it was not until there was a change in the editorial staff that he became a regular contributor.

Like Rowlandson and Daumier, his draughtsmanship was based more on an innate richness of spirit than a desire to be funny or an urge to change the world. His was the capacity to stretch or shrink the fabric of life according to its need, rather than to scratch witticisms upon its surface, or distort it to some political or religious end.

At the age of 32 he was still developing, achieving a more sensitive line, a more intangible grasp of atmosphere. But for his death he might well have become one of the greatest commentators on English life that we have had. As it is, whatever his achievement will prove to be, he will always remain for those who knew him a great man for his own personal qualities : he possessed the integrity of purpose that refused to be stampeded by the -isms and fashions of the moment, a love of life that led him to a wide range of activity, from writing and painting to gardening and ski-ing, and a gentleness and forgiving spirit in the face of wrong that was at times unbelievable.

Our loss and that of the world is a great one.

OBSCURATION, VENTILATION *and* PROTECTION FROM GLASS IN LARGE BUILDINGS

Ministry of Home Security: Research and Experiments Department Bulletin No. C.13

CONTENTS *

INTRODUCTION

1. GENERAL AIMS

This bulletin covers not only obscuration, i.e., prevention of the emission of light from buildings during black-out hours, but also the treatment of windows and other openings to provide :

(*a*) adequate natural light ;
(*b*) reasonable ventilation in the black-out ;
(*c*) protection from flying and falling glass ;
(*d*) protection from weather, if glass is broken ;
(*e*) maintenance of the black-out if glass is broken.

The aim is to maintain a high standard of efficiency in buildings, notwithstanding war restrictions. Improved production resulting from the effect of good protection and conditions on the mental and physical well-being of those who use the building will tend to offset overhead and maintenance costs.

Some sort of obscuration will have been provided in buildings in use, but the present object is to promote a wider knowledge of the subject and to suggest ways and means of improving existing methods, or of substituting new ones. Special attention is given to alternatives where the usual materials are difficult to get.

If any window or glazed opening, or opening for ventilation, is part of an air raid shelter within the meaning of the Civil Defence Act, it must be protected as laid down in the Revised Code under the Act.

2. THE EFFECTS OF HIGH EXPLOSIVE BOMBS

Air attack affects all the problems of obscuration. Its effects are described in A.R.P. Handbook No. 5, " Structural Defence," and a summary is given in A.R.P. Memorandum No. 12, " Protection of Windows in Commercial and Industrial Buildings."

The protection of glazed openings can be considered under two heads, namely, " Near (intense) effects," and " Distant effects."

" NEAR EFFECTS "

Protection against " near effects " is dealt with in A.R.P. Memorandum No. 12.

Glass of normal commercial thickness, whether sheet, plate or wired, is likely to be broken by blast within about 200 ft. from a bomb, and the only way to avoid risk of such damage is to remove the glass. If the opening is to be maintained, glass may be replaced by a flexible substitute.

" DISTANT EFFECTS "

Beyond about 200 ft., the chance of breakage depends on the size and kind of bomb, and on factors such as the strength of the glass, its fixing and size, and the degree of protection afforded by adjacent walls, etc.

Much more glass is likely to be subjected to " distant effects " than to " near effects," and the problem of providing against such effects is concerned with :

(*a*) protection (of plant and products, etc.) from weather, after glass is broken, *i.e.*, the maintenance of the use of the building ;
(*b*) maintaining obscuration when glass is broken ;
(*c*) protection from flying and falling glass.

By admitting rain and impairing obscuration, extensive glass breakage may put the building or parts of it out of use for days. Production may be reduced or even wholly stopped for a period likely to be costly. If proper precautions are not general in a given area, more or less built-up, heavy bombing over that area may necessitate large-scale replacements and, in consequence, there will be delay in delivery and fixing of glass and in general making good. The cost of such inconvenience and delay should be considered in relation to the cost of the black-out precautions. This relationship between cost and protection should also be considered if buildings or rooms have valuable contents.

OBSCURATION

3. THE IMPORTANCE OF GOOD WORKING LIGHT

Conditions in some buildings have deteriorated through obscuration which permanently excludes much, or all, of the daylight. Artificial lighting may also have been reduced in an effort to prevent emission of light. Good lighting improves working efficiency and it is desirable that a high standard should be attained from this point of view alone. Poor lighting reduces speed of work, increases mistakes and accidents and causes absence through ill-health.

When natural lighting has to be shut out, artificial lighting should be of a higher standard than the officially recommended minimum.

If sound methods are adopted, the obscuration of even a high intensity of artificial lighting is not difficult, although a reduced intensity near external doorways may be desirable to prevent light leakage at such points, and to lessen the contrast in passing from a lighted interior to darkness outside.

† The Departmental Committee on Lighting in Factories has recommended minimum illumination values on the working plane. In addition, the Illumination Engineering Society published in November, 1938, a table of illumination values recommended for different kinds of work (see Appendix 1). It was recognised, however, that these recommendations would require periodical revision to incorporate new developments in lighting and changes in practice. The values given are service values of average illumination within the area over which the visual task is carried out. Where there is no definite area of

* Figures 2, H (section) ; 3A ; 3B ; 5, A—H ; 7, AR are omitted.

† Fifth Report of The Departmental Committee on Lighting in Factories (H.M.S.O., price 3d.).

work, the illumination values are assumed to be available on a horizontal plane 2 ft. 9 in. from the floor.

4. Factors Governing Design

The following factors must be considered in devising systems of obscuration wholly or partly removable. (See Appendix 2.)

(1) The proportion of existing glazing to be permanently obscured should be determined (by experiment or calculation) so as to give reasonably uniform day-lighting on the working plane over the greater part of daylight hours. Reasonable distribution of day-lighting must be considered. Experiments can be made with existing systems, e.g., by the removal of black paint where light is to be admitted or by the use of tarpaulins to black-out temporarily some parts of the glazing. This may be done progressively and the results checked at each stage. As a rough working rule, the amount and distribution of the unobscured sources of day-lighting may be such that the intensities on the benches and machines, on a dull overcast day, do not fall below the values quoted in the table of artificial light intensities in Appendix 1, but where it is impossible to provide this standard of day-lighting, the psychological advantage of smaller amounts of daylight should not be ignored.

(2) Where the permanently obscured proportion is high, the cost of extra artificial illumination must be considered.

(3) Methods of obscuration should allow of adequate artificial lighting without risk of light leakage.

(4) Methods of obscuration should give access for cleaning the glass.

(5) Labour and maintenance costs in working controllable obscuration must be considered in relation to first cost. A system cheap in first cost, but requiring much hand labour to operate twice daily, or by reason of flimsy construction demanding constant repair, may show over a period of three years, no economy against a more costly but mainly mechanically-operated system.

In other words, first cost is only one item to be considered. It should also be borne in mind that some types of gearing and parts for gearing may not be easy to get.

(6) The proportion of glazing to be fitted with controllable obscuration (which is relatively expensive) against that permanently obscured will be less if interiors are painted a light colour. This is most important for those surfaces best placed to receive light through the roof glazing and to reflect it downwards on to the working plane, e.g., the reflecting surfaces of roof soffits inside north-light roofs. The more the reflecting surface faces the sky through the glazing, the better the result.

(7) In deciding on the proportions of permanent and controllable obscuration, account must be taken of the fact that many systems of controllable obscuration cut off a certain amount of light even when open.

(8) Where areas of glazing, either vertical or horizontal, have to be obscured, care should be taken that the more valuable light sources are retained. The amounts of light receivable through different parts of a glazed opening vary considerably. For instance, the lower parts of windows should be obscured in preference to the upper, which are the more important light sources, particularly where windows have obstructions opposite them, such as other buildings. The same applies in the design of controllable obscuration. Care should be taken to see that the day-lighting is not obstructed by the working or fixed parts of the devices applied, or by light-trap ventilators. If these are permanently fixed across the heads of windows, they may obstruct light which is specially valuable to the far sides of interiors.

(9) Availability of materials—a designer must remember the lack of many materials suitable for obscuration, and should search for materials and adopt combinations of materials that are available.

(10) With all the above, it is necessary to decide :

(*a*) the degree of weather resistance desired if glass is broken ;
(*b*) the degree of protection against flying and falling glass aimed at.

(11) As bombs may fall with short warning, it may, in some cases, be worth while having controllable obscuration that can be made effective very quickly. The obscuration may provide a measure of protection.

(12) Use of a building after glazing has been broken—almost all forms of controllable obscuration, if they are weather-resistant after the glass has been broken, will darken interiors. The necessity for either re-glazing or substituting other material after damage must be borne in mind, and also a period of time will elapse whilst the new materials are obtained and fixed. Under conditions of possible repeated damage, it may be considered advisable to replace the broken glass, either wholly or in part, by a flexible substitute.*

5. Methods of Obscuration and Treatments for Glass

Tables 1 and 2 show the various recommended methods of controllable and permanent obscuration and the degree of weather resistance afforded. Table 3 shows the additional means that may be used to minimise the danger from flying glass.

With all types of obscuration, care must be taken to use materials with the utmost economy ; there must be no waste in thicknesses of structural members and any gearing or operating parts should be simple. All types should prevent light leakage, and thought should be given to questions of speed of operation and maintenance and risk of faults in operation.

Details of methods of construction, materials, etc., for the various types are given in Appendix 2.

Table 1.—Controllable Obscuration

(1) External Movable Shutters.

Generally, these are economical for use on roof glazing only. They should be of substantial material and construction to withstand weather and use for at least three years.

Advantages.
Easily rendered weatherproof.
Eliminate " shine " from glazing and permit camouflage treatment to be continuous over the roof.
Not interfered with by internal obstructions such as roof trusses, pipes, runways, etc.

Disadvantages.
By themselves external shutters give to the interior no protection against flying glass.
Do not lessen the risk of glass breaking.
Can only be relied upon for camouflage if able to be closed rapidly on receipt of air raid warning.

(2) Internal Movable Shutters.

Like external shutters, these generally are economical for use under roof glazing only. As continuous exposure is not in question, internal shutters may be made of less durable material than external.

Advantages.
Internal shutters of weather-resisting material should give complete protection against flying glass, if closed.

Disadvantages.
Harder to weatherproof than external shutters.
Can only protect against flying glass if the shutters are in position during an air raid.
Additional camouflage of the glass may be required, and this will cut down the daylight available.
Pipes, runways, etc., may complicate design and render the method uneconomical.

(3) Internal Light-Weight Screens.

These are only intended for use with vertical glazing for which they are simple and cheap. They should give good obscuration and some weather protection even after the glass is broken. A weather-resisting screen, easily put into place, should yield to blast, fall out harmlessly and be easily put back.

Advantages.
Simple and cheap.
Light and easily put into place.
Protect against flying glass if of suitable material and in place.

* See Appendix 2C (1) ; Glass replaced by translucent flexible substitute.

Disadvantages.

Only temporarily weather-resisting unless special precautions are taken.

Protect against flying glass only if in place during an air raid.

(4) BLINDS OR CURTAINS.

Blinds may be used on either vertical or sloping glazing, but curtains are only for vertical glazing.

Advantages.

Often the cheapest form of obscuration.

Afford slight weather protection with vertical glazing.

Disadvantages.

Except when specially designed cannot be relied upon to give weather protection, particularly on sloping glazing. Even if of heavy material, cannot give complete protection against flying glass.

TABLE 2.—PERMANENT OBSCURATION

(1) GLASS REPLACED BY WEATHER-RESISING SHEET MATTERIAL

This is the only way entirely to eliminate danger due to flying glass.

(2) EXTERNAL FIXED SHUTTERS.

(3) INTERNAL FIXED SHUTTERS.

The same advantages and disadvantages apply to Types (2) and (3) as to removable shutters.

(4) OPAQUE MATERIAL FIXED TO GLASS.

Vertical and sloping glazing may be treated with opaque materials stuck to glass. They may consist of a combination of materials not necessarily opaque in themselves, e.g., textile fabrics and bituminous compounds.

Advantages.

Some weather resistance can be had with these methods. The glass may be shattered but the broken glass and the material applied to it should hold together, thus minimising the risk of glass flying. A treated pane may be blown out in one piece, but with some methods most, if not all, of the broken glass sticks to the material for a time.

If the treatment is applied to the outside it will eliminate shine from glass. (See 8, Camouflage requirements and obscuration.)

Disadvantages.

There is little choice of treatments that can be regarded as durable.

(5) PAINT.

This form of obscuration is only applicable to buildings (or rooms) in which the risk of damage and consequent stoppage of work, due to weather penetration and light leakage, is of no consequence.

Advantages.

A cheap way of obtaining permanent obscuration and easily renewed.

Disadvantages.

No weather resistance and no protection from flying glass.

The material needs periodical renewal.

Obscuration fails when glass is broken.

TABLE 3.—PROTECTION FROM FLYING GLASS

(1) GLASS REPLACED BY FLEXIBLE SUBSTITUTE.

Ideal but costly.

(2) GLASS REPLACED BY WIRED GLASS.

Wired glass cracks like ordinary glass of the same overall thickness, but has not the same tendency to fly into small fragments. Special precautions are needed to prevent whole panes from being blown out of their frames. (See Appendix 2 C (2) and (3). Figs. 5A, B, C, D, and E).

(3) WIRE NETTING PLACED BEHIND THE GLASS.

Only wire netting of small mesh will afford protection against the larger glass fragments. The mesh should be $\frac{3}{4}$ in. or prefert ably less. (See Appendix 2 (C) (3)).

(4) ANTI-SCATTER ADHESIVE TREATMENTS FOR GLASS.

These include (in decreasing order of strength) textile materials, transparent films, strip treatments and liquid coatings. Even the textile materials are hardly strong enough for sloping or horizontal glazing.

They cannot prevent whole panes from being blown out.

Many proprietary materials are sold in this category, and before any extensive purchase, it is well to consult the Building Research Station, Garston, near Watford.

Daylighting will be reduced according to the kind of material used. The lighter in colour the textile material is and the more open the weave it has, the greater will be the transmission of light.

VENTILATION

6. GENERAL

This bulletin is not concerned with mechanical ventilation, with arrangements for heating, cooling and cleansing the air, or with arrangements for removal of dust, fumes and steam. These require special installations taking obscuration into account, to ensure that successful plants will be provided.

Before the black-out, natural ventilation for buildings dealt with herein was obtained generally through windows, doors, fanlights, air bricks (perforated bricks or small openings protected by metal grilles) and ventilator openings protected from weather by louvres and devices such as roof ventilators, etc.

Problems of natural ventilation cannot be considered apart from obscuration, protection against flying glass, and weather exclusion.

To meet black-out requirements, some ventilating openings may have to be permanently obscured. The ventilation system must be capable, therefore, of meeting daylight conditions and also those of complete obscuration.

Natural ventilation can be obtained by the use of ventilator light-traps and often by suitable modifications of arrangements for obscuration. (See Appendix 2—Details of practical methods of obscuration.) Ventilator light-traps (described below) allow the passage of air without leakage of light, either directly or indirectly, from sources inside the buildings.

7. VENTILATOR LIGHT-TRAPS

(*a*) THE PRINCIPLE OF THE LIGHT-TRAP.

This is described and illustrated in British Standard Specification BS/ARP 31, "Ventilation for buildings in conditions of black-out." (See also Appendix 3 for diagram of light-trap and typical examples of its use.)

Briefly, the requirements of the ventilator light-trap are :

(i) that it should offer the minimum interference with the passage of air, and

(ii) that no direct light, or light undergoing specular reflection from polished surfaces, should be visible at its exterior entrance.

(*b*) EFFECT ON VENTILATION.

As compared with ordinary ventilators of the same size, ventilator light-traps, by interference with the flow, reduce the supply of air. Additional ventilation may, therefore, be necessary where light-traps are substituted.

(*c*) DESIGN.

It is not possible to suggest ventilator light-traps to meet all the needs that arise in practice. In Appendix 3 will be found illustrations with notes, of devices which should in general serve as guides in solving most problems.

Ventilators subject to direct artificial light from a source inside the building must be designed to trap the light effectively. It is essential that the whole surface of the interior of the ventilator light-trap should be treated by a proper coating of matt black paint or its equivalent in order to minimise the transmission of light by reflection. It may be stated that no light should fall directly from a source on to any surface of the trap visible outside the building. For this rule, "source" should include not only direct sources of illumination, but also any large, brightly lit, light-coloured surface.

With regard to the need for maintaining good standards of daylight, care should be taken to see that ventilating devices do not unduly obstruct sources of natural light, at windows, for instance. (See Obscuration 4—Factors governing design.)

Upkeep and replacement and weather resistance must also be borne in mind. Devices should be well made.

If placed at glazed openings (windows, etc.), the necessity for cleaning the glass should not be forgotten. Ventilators themselves should be kept clean, so that the passage of air will not be restricted.

CAMOUFLAGE REQUIREMENTS AND OBSCURATION

8. The glazing in factory roof lights or in windows may need camouflage, depending upon the nature of the building and its surroundings.

In certain built-up areas, no treatment may be required, but for large factories in suburban or rural areas, it is often necessary to carry out extensive camouflage.

The camouflage may be paint on the glass or the outer surface of external shutters, an " anti-shine " preparation applied to the outer surface of the glass, or nets. Nets suspended horizontally from ridge to ridge of a saw-tooth roof, cut off some light from the vertical or steeply sloped north-lights ; the standard net may cut off about 30 per cent. of the daylight through the window it shields. Nets from the eaves similarly cut off light which would otherwise enter the factory through vertical glazing in the walls. Anti-shine treatment prevents " glare " from the surface of the glass, and is chiefly used on sloping roof glazing, though it may be required also on vertical glazing which does not face due north. This may reduce the amount of light that can be transmitted as much as 40 per cent. or more, even when the glass is clean, and as the roughened surface tends to collect dirt, the loss of light may become much higher.

If paint, anti-shine treatments or nets are used, and the natural lighting conditions within the factory are to be adequate, a larger area of glazing must be provided than would otherwise be the case. This affects the design of new factories, and in an existing factory limits the amount of glass which can be permanently obscured, e.g., by bitumen fabric or other coatings or by glass replacement.

If it is not desired to reduce the amount of natural daylight by camouflage on the glass, then external shutters are necessary. These serve both to prevent glare and to carry the camouflage paint pattern, as well as to serve their normal purpose of obscuration. An important point in their design is that they should be capable of being closed very quickly, immediately an air raid warning is received. If, on the contrary, the glass can receive the camouflage, then internal obscuration systems may be employed, and since these need not be so robust, a considerable saving is effected.

N.B.—Information on proprietary devices for obscuration, ventilation and protection is obtainable from such organisations as The Building Centre, 158 Bond Street, London, W.1.

APPENDIX 1.—TABLE OF VALUES OF ILLUMINATION

1. Table of values of illumination recommended for various tasks ; issued by the Illuminating Engineering Society (London) in November, 1938.

	Recommended Foot-Candle Value	*Class of Task*
(*a*)	Above 50	Precision work to a high degree of accuracy ; tasks requiring rapid discrimination ; displays.
(*b*)	25—50	Severe and prolonged visual tasks such as fine engraving ; discrimination or inspection of fine details of low contrast.
(*c*)	15—25	Prolonged critical visual tasks such as drawing, fine assembling, fine machine work, proof-reading, sewing on dark goods and type-setting.
(*d*)	10—15	Visual tasks such as skilled benchwork, sustained reading and sewing on light goods.
(*e*)	6—10	Less exact visual tasks, such as casual reading and large assembly work.
(*f*)	4—6	Work of simple character not involving close attention to fine detail.
(*g*)	2—4	Casual observation where no specific work is performed.

2. It may be noted that in the Building Research Station's Building Bulletins Nos. 1 and 4, " Economical Designs for Factories in Structural Steelwork," there is a note, " Daylighting for new War Factories," in which is described a simplified method of computing the amount of daylight receivable from long strips of glazing. This method can be applied in the examination of many existing factories. The types of factories considered in the Building Research Bulletin* are designed to give daylight factors of about 5 per cent. on the working plane. In practice, this means that when the numerous small obstructions in a factory have been taken into account and the roofing glass has lost its initial cleanness, the intensities of illumination in the building on an overcast day in winter are likely to be of the order of 15 ft. candles.

APPENDIX 2.—DETAILS OF PRACTICAL METHODS OF OBSCURATION

A. CONTROLLABLE OBSCURATION

(1) EXTERNAL SHUTTERS. (Figs. 1A, B, C, D, E, F.) (Diagrammatic only.)

Control and Construction.

Movable shutters may be in panels hinged to flap or to slide or to fold so that they can be moved away from the glazing. Care must be taken to design for wind pressure, particularly if the system adopted has panels which, in operation, rise off the roof. Gearing for control should be so arranged that the greatest possible area of shuttering will operate as a unit. This applies particularly should hand operation be decided upon. Frequent operation at least twice daily involves a considerable amount of labour, and, in addition, there is the difficulty of satisfactory disposal of the cords or chains if there are many points of control. Owing to the risk of breakdown, there should not be complete reliance upon electric motors for moving shutters.

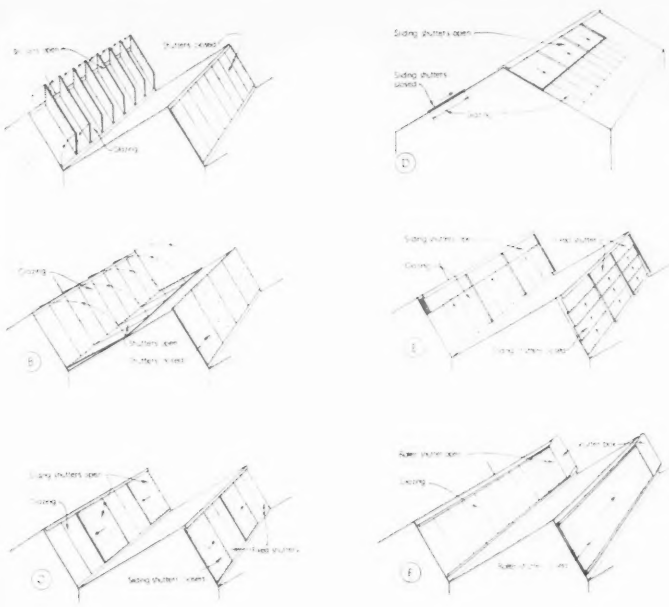
Weatherproofing and Drainage.

Systems of this type must be designed to throw off water. This should present no difficulty, and may be done by means of flashings and gutterings as in permanent roof structures, such as skylights, dormer windows, etc.

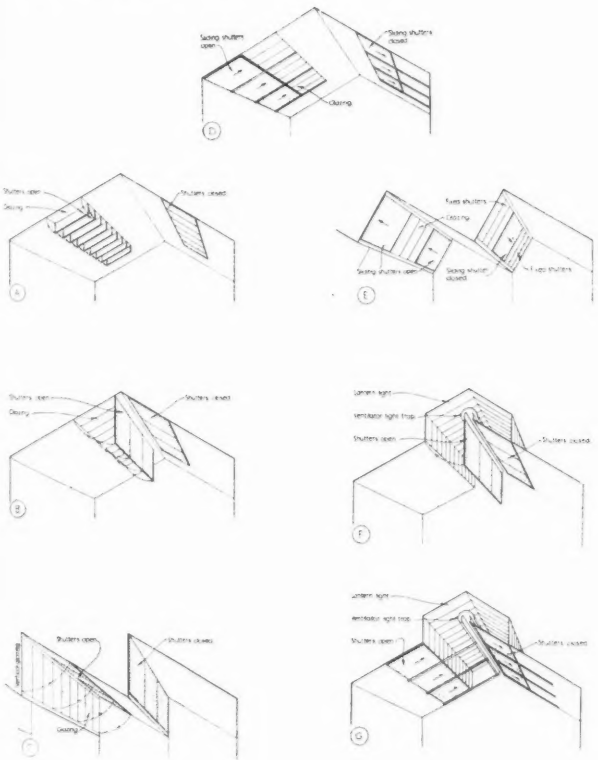
Materials for Framing.

If timber or steel is used, strict economy must be exercised by making the most of scantlings available and using the minimum sizes compatible with strength and durability. Light pressed steel framing may often be used. For panels, there are a number of materials and combinations of materials that should be available. Sheet metals such as corrugated sheet steel or zinc may be used. If necessary, these may be stiffened with ribs or corrugations and the edges may be folded to form frames. Thin sheet metal may be backed with fabric or faced with asbestos and the whole covered in bituminous emulsion or with materials such as wall board or building board. (In these combinations of materials care must be taken to make the panels water-resisting, particularly at the edges.) Building board of the dense pressed variety about $\frac{3}{16}$ in. thick may be used, and this should be painted or otherwise treated to resist weather and the edges should be protected. Asbestos cement sheeting, either plain or corrugated, may be used, but should be adequately framed to give greater resistance

* The daylight factor at a point in a building is the ratio of the illumination on the working surface at that point to the illumination at the same instant on an unobstructed horizontal surface out-of-doors.



Above : Figs. 1A—F
Below : Figs. 2A—G



to wind pressure. Impregnated roofing felt reinforced with wire netting to strengthen it against the effects of explosion may be made up in panels with timber framing. It must be realised that the more brittle materials, such as cement-asbestos sheeting, are nearly as vulnerable to blast and flying debris as is roof glazing.

(2) INTERNAL SHUTTERS. (Figs. 2A, B, C, D, E, F, G, H.) (Diagrammatic only.)

Control and Construction.

See External Shutters.

Weatherproofing and Drainage.

If systems of this type are intended to remain weatherproof after fracture of the glass, internal guttering must be provided.

Materials.

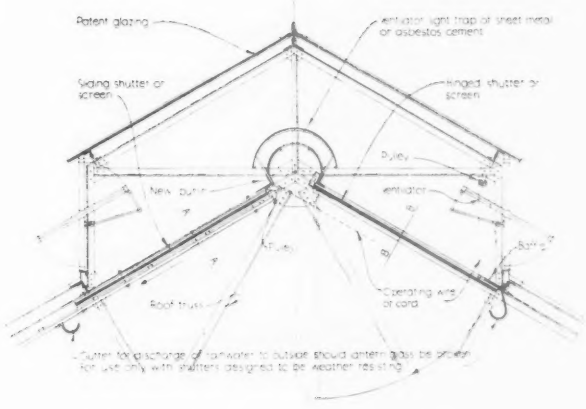
For internal shutters the question of protection against flying and falling glass must be considered. Most sheet materials of weather-resistant character will resist glass splinters projected with violence, provided that they are strong enough to resist blast. Fabric materials cannot, however, be relied upon to stop glass fragments. Suitable materials which should be available include :

Perforated thin sheets of metal backed with fabric or other suitable material impregnated to resist water, the whole being thick enough to obscure light.

Wall boards or building boards impregnated with creosote or similar treatment to resist weather.

Fabrics of the canvas or tarpaulin type.

Various sheet materials of the insulating type, if impregnated or painted to resist water. Some of these may also need to be combined with fabric. Sheet materials generally used for quite different purposes may be available and economical to use. Flooring material, for instance, such as linoleum and matting of the grass or fibre variety. The latter will need impregnating or painting to resist water and should be reinforced with wire netting to avoid risk of being penetrated by glass splinters.



TYPICAL SECTION THROUGH LANTERN LIGHT

Above : Fig 2H (Omitting sections A—A and B—B)

(3) Internal Lightweight Screens. (Figs. 3A, B. [omitted here, Ed. R.I.B.A. Jnl.] and C)

Methods of Fixing.

It is desirable that all but the lightest unframed screens should be suspended so that they do not fall to the floor when thrown out by blast. This is best done by fastening the screen to the window head or lintel with a shock-absorbing material such as rubber. Wide elastic bands or rings cut from old motor tyre inner tubes may be used. Special rubber shock absorbers for this purpose are on the market. Very large windows require multiple screens. The units of multiple screens should not be larger than about 6 ft. by 4 ft. Windows of considerable area will present difficulties of handling and fixing, and permanent framing may be necessary to hold the screen units.

Materials.

Screens may be made of any inexpensive flexible lightweight sheet material that is not liable to warp. They should have a light frame unless the sheet material is strong enough to stand by itself and remain serviceable with continual handling. These screens may be made weather-resisting by painting them or by the use of sheet materials impregnated with a water-repellant substance. The edges of some sheet materials are specially liable to soak up moisture and should be thickly painted or otherwise treated. The following sheet materials are suitable :

Stout Kraft Liner Board. (Strong paper.) Minimum thickness should be .016 in. Suitable for windows which, because of their position, are well protected against blast and driving rain.

Corrugated Fibreboard. (Double-faced corrugated board). If used on small windows, say 4 ft. by 2 ft., or less, can be without a frame. Edges should be protected with paper stuck on before painting.

Solid Fibreboard. (Thick cardboard.) Either a strong container board or chip board.

Wallboard or Building Board. Either the soft insulating board about ½ in. thick or the dense pressed board about ⅛ in. thick. The latter is preferable. Can be used without frames on small windows.

Plywood. Is liable to warp unless framed. Any grade is suitable.

Wire Netting and Fabric. A strong fabric, dense enough to obscure and preferably weatherproofed, used in connection with a wire netting screen.

Box Shooks. (Very thin board.) Since these are available at low cost in small sizes only, cross battens or a frame with cross members are necessary.

Thin Metal Sheets. Suitable, in principle, where weight is not excessive. Perforated thin sheets of metal may be used, but will require fabric backing for weather resistance and obscuration of light.

Bituminous Sheeting. Any stout roofing felt that offers good resistance to tearing. Some forms are now available reinforced with wire netting. Should be well supported in frames by cross members. Linoleum may be similarly used.

Plasterboard. The plaster core is brittle and the board should preferably be supported in frames. If used externally, the board must be protected against moisture, particularly at the edges. Specially suitable where non-inflammability is important. An asbestos board containing at least 50 per cent. of asbestos is an alternative. The wooden frame should be coated with a fire-retarding paint, the whole having a fire resistance of at least half an hour.

Fire-resisting Sheet Material. Thin metal sheets perforated and backed on each side with asbestos are obtainable. Any necessary framing must be fire-resisting where non-inflammability is required.

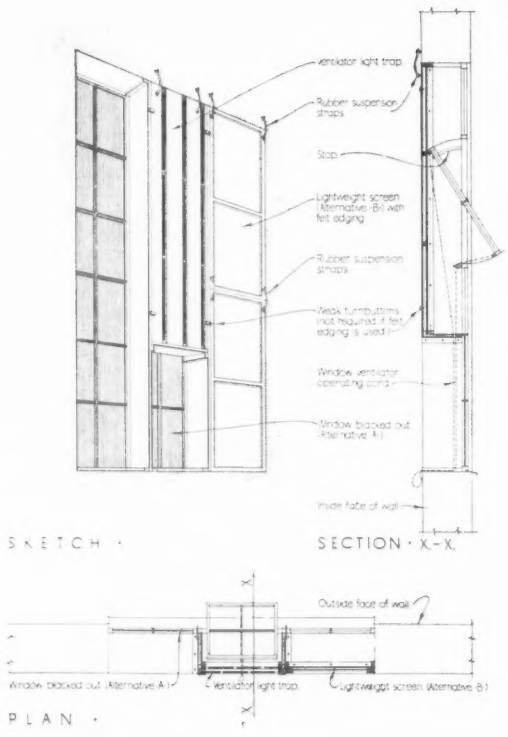


Fig. 3C

Insulating Boards. Some may be too expensive. With these may be considered boards of rushes pressed together and held with wire. Edges may need protecting with fabric.

Matting of the grass or fibre variety, if obtainable and if economical. These must be dense enough for obscuration and may need binding at edges and where fixed to frames. The addition of wire netting is necessary.

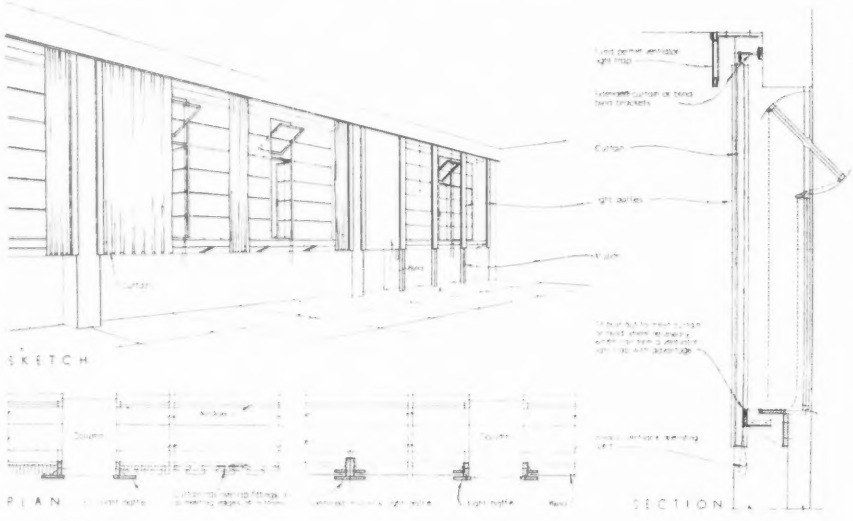


Fig. 4

(4) Blinds and Curtains. (Fig. 4.)

Control and Construction.

Blinds or curtains may be made in the ordinary way to roll up or pull aside for day-lighting, but they must be designed to overcome movement caused by air currents and affecting obscuration when windows are open or glass is broken.

Materials.

Fabrics must be chosen that are dense enough to obscure. There are many low cost materials available. Some paper materials may be considered for use as blinds, though they may need the addition of light wood or other slatting for stiffening. There are papers treated in various ways to make them tough, foldable and water-resistant.

B. Permanent Obscuration

(1) Glass Replaced by Weather-resisting Sheet Material.*

This applies mainly to roof glazing. There are several sheet materials that will resist greater blast pressures than will glass. Those that are not brittle, if displaced by blast, can often be replaced undamaged.

Fixing (see Figs. 5F, G and H). †

Sheet materials can be fixed into patent glazing bars, though, according to the nature of the material used, precautions must be taken against weather. Also flying pieces of brittle sheeting can be dangerous.

Materials.

Galvanised flat sheet steel, composite sheets of asbestos and steel, hardboards (hard building board).

Thinner and more flexible materials, such as bituminous felt reinforced with wire netting, soft building boards, etc., will require extra support and treatment against weather (Fig. 5F, G and H).†

It is little use to substitute brittle types of sheeting for glass. Flat asbestos-cement sheeting, for instance, including the newer "flexible" type, is readily broken by blast. If such sheeting is treated with bitumen-fabric and given supports with cross bars it should be satisfactory.

(2) Shutters (External or Internal).

Fixing.

Care should be taken in fixing the shutters, particularly with vertical glazing. If they are fixed direct to the window frames there is the danger of the whole window or section of it, together with the shutter, being shifted from its fixings by the effect of an explosion.

Materials.

Materials suitable for use on external or internal fixed shutters will be the same as for movable shutters listed above.

(3) Opaque Materials Fixed to the Glass.

The use of paper, cardboard and textile materials is described in the pamphlet, "Your Home as an Air Raid Shelter."

The following are useful:

For vertical glazing, paper or cardboard may be stuck to the inside surface of the glass. An adhesive should be chosen that does not become brittle on drying.

Strong wrapping paper, which is thick enough to prevent light leakage, either in sheet or in wide contiguous strips, should be carried over on to the glazing bars, sashes or frames.

As it is not possible to carry cardboard over on to the frame unless the cardboard is very flexible, self-adhesive cloth tape such as insulating tape should be used to join the edges of the cardboard to the frame.

To overcome the tendency of material affixed with aqueous adhesive to come unstuck if the window becomes damp through condensation, for instance, the finished treatment may be varnished over, wholly or to cover the edges. The treatment must be dry before the varnish is applied.

For sloping glazing a bitumen fabric treatment may be used. A variety of such methods is available, but in the light of present knowledge, those incorporating bituminous emulsions are preferred.

Alternative systems should be given careful consideration before adoption, and they should conform with requirements (*a*) that the treatment has sufficient resistance to water so that under wet weather conditions it will not lose contact with the glass, and will retain its holding powers (see below), and (*b*) that the finished treatment shall be free from pin-holes and not permit passage of light.

Descriptions of specific tests in respect of the necessary requirements are incorporated in a British Standards Specification (A.R.P. Series).‡

These treatments are applied to the upper exposed surface of roof glazing and generally consist of fabric, of hessian or other suitable material fixed to the glazing with bituminous material. The fabric should overlap glazing bars or frames and be securely stuck to them, or be tucked under the lead of patent glazing bars. It should be turned under the bottom edges of the glass sheets in patent roofing glazing.

In warm sunny weather, the broken glass tends to fall away from the hessian and bitumen. Except for the smallest splinters or flakes of glass, which should not cause damage, the danger of glass falling can be eliminated by the fixing of wire netting (of mesh not more than ½ in.) beneath and as near to the glass as possible. Netting of 2 in. mesh will be suitable in most cases.

Alternatively, the risk can be much reduced by lessening the unsupported area of treated glazing by the fixing of extra supporting bars. For instance, with patent roof glazing, cross bars may be fixed to glazing bars at about 2 ft. intervals.

Examples of designs for these methods of supporting broken glass are shown in Figs. 5A, B, C, D, and E.† (*Note:* There are a number of proprietary devices available.)

(4) Paint.

The most economical treatment is to apply to the glass on the room side black paint or some other suitable material so that light is not emitted.

Permanent adhesion of materials of the nature of paint can be expected only when the surface of the glass is perfectly clean.

Some paint materials, applied on the room side of glass, may in time become brittle (after the glass has been exposed to light and weather), and because of it lose adhesion. In some instances the applied material may be affected by condensation.

A good quality of material should be used and care must be taken to use an undercoat best likely to adhere to the glass surface. The most economical number of coats should be used, compatible with obtaining complete obscuration.

The final coat of paint should be in a colour other than black providing obscuration is ensured. Light colours are very desirable in order to prevent a depressing effect.

C. Means that may be taken to Minimise the Risk from Broken Glass

(1) Glass Replaced by Translucent Flexible Glass Substitute.§

There are several materials permanent enough for war-time now available. They are mostly cellulose acetate or other form of plastic reinforced with metal or fabric. Oiled or waxed fabrics or tough paper are useful. These admit light in varying degrees and will resist wind pressure according to their flexibility and strength.

These substitutes should be so fixed that they can be harmlessly dislodged by blast from the window frame without damage to their edges, and can be readily replaced. They must, however, be fixed firmly enough to resist wind pressure.

In some cases where ½-in. mesh wire netting has been fixed behind the glass in vertical glazing (see (3) below) it may be possible when glass is broken to use the wire netting as a base

* R. & E. Bulletin No. C. 10. Flexible substitutes for glass.

† These figures are not included in this printing.—[Ed. R.I.B.A. Jul.]

‡ BS/ARP.48 British Standards Specification (A.R.P. Series) for fabric-bitumen emulsion treatment for roof glazing. By the British Standards Institution, 28, Victoria Street, London, S.W.1.

§ R. & E. Bulletin C.10. Flexible substitutes for glass.

upon which to fix cheap translucent material as a substitute for glass.

Some of these materials, particularly plastics, reinforced with metallic network, have possible applications in new constructions also.

(2) Glass Replaced by Wired Glass.

Wired glass is much less likely to fall out of roof glazing when cracked than is ordinary glass of equivalent thickness. It can, however, be dislodged bodily and therefore requires support underneath by wire netting or by transverse supports. The danger of bodily displacement can be reduced by suitable fixing. This fixing may be similar to that shown in Figs. 5A, B, C, D and E.*

(3) Wire Netting Placed Behind the Glass. (Figs. 5A, B, C, D and E, for roof glazing.)*

Wire netting should not be of a mesh larger than ¾ in., preferably ½ in., and should be fixed securely behind or beneath and as near to the glass surface as possible. The figures show typical methods of fixing netting under roof glazing.

(4) Anti-scatter Adhesive Treatments for Glass.

These are described in A.R.P. Memorandum No. 12, and in "Your Home as an Air Raid Shelter." Also in R. & E. Bulletins No. C.4, "The Protection of Glass in Hospitals," and No. C.7, "The Protection of Factory Glazing." (A revision of No. C.7 is in hand.)

APPENDIX 3.—VENTILATOR LIGHT-TRAPS

General Notes

For further particulars of ventilator light-traps, their adaptation to buildings, and the influence of ventilation on health, reference should be made to the following documents :

(1) "Factory Ventilation in the Black-out" (H.M.S.O., price 3d.)
(2) "Industrial Health in War" (H.M.S.O., price 6d.)
(3) "Ventilation in the Black-out" (H.M.S.O., price 2d.)
(4) British Standards Specification BS/ARP 31, "Ventilation for buildings in conditions of black-out." (The British Standards Institution, 28 Victoria Street, London, S.W.1, price 6d., post free 8d.).

Proprietary Devices.

There are numerous devices on sale which conform more or less with the principles and recommendations set out at page 11 of this bulletin. These include simple air bricks (which sometimes require shielding to prevent light leakage), patent ventilators of inexpensive design, louvre type ventilators and specially designed ventilator light-traps (removable and fixed). Some of these devices are specially designed to combine with other black-out precautions. Electrically driven fans fitted with light-trap devices are also on the market.

When choosing proprietary devices careful consideration should be given to requirements set forth in this bulletin.

Some Typical Examples.

The following typical examples of devices should serve as guides for dealing with the more common problems met with in arranging natural ventilation in the black-out. The first illustration shows the principle of the light-trap.

Fig. 6A, B and C. Light-trap Diagrams.

A, B and C show diagrammatically three applications of the principle of the light-trap ventilator.

Type A has, perhaps, the most general application ; the sizes of the baffles must be adjusted depending on the positions of the sources of illumination.

Type B can be used without reference to the position of the sources of illumination, and it offers little obstruction to the flow of air. Unless made to be removable, however, it is liable to cut off a certain amount of daylight.

Type C is primarily intended for incorporation in lightweight

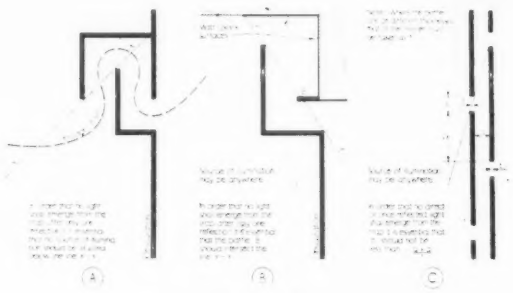


Fig. 6A.B.C

screens, but there are a number of other applications of this principle.

N.B.—The interior of light-traps must have a surface equivalent to that obtained by a proper coating of *matt black* paint.

Fig. 7A to R.* Light-traps in Vertical Glazing.

The drawings A to R in this figure show, in diagrammatic form, the principle of the light-trap applied in a number of ways with means of obscuration on vertical glazing.

N.B.—The trap may run the full width of the screen or be a box of selected width with the aperture in the screen made accordingly. The size of the trap will be related to the amount of ventilation needed.

A to F show light-traps, built as part of lightweight screens and to be removable with them. A and B are for narrow internal reveals, B shows how the baffle on the room side may be hinged to make it adjustable. C to E show types of traps in conjunction with varying depths of internal reveals. F shows a double-sided lightweight screen with slots for ventilation in accordance with the principle indicated in Fig. 6C.

G to I show how traps may be made either fixed or removable in conjunction with lightweight screens, blinds or curtains. Ventilation may be either at the top or the bottom of the window or both. These types will apply where the internal window reveal is shallow, or as shown in G and H where the opening light to the window opens inwards.

J to M show traps that are removable and may be used in conjunction with lightweight screens, blinds and curtains. These combined means ensure that the whole window may be used for day-lighting. If the internal reveal is shallow, the screens and traps may be placed on brackets. In such cases side pieces are necessary for screens to prevent light leakage and end baffles are necessary for the traps.

N to P show traps that allow ventilation to be controlled by adjustable baffles. They may be used where windows are permanently blacked-out or where screens, blinds or curtains are used.

Q and R show traps built into external shutters, and it will be noted that the sloping baffles incline to throw off water. The drawings show two different depths of external reveal to windows.

Fig. 8A, B, C, and D. Ventilator Light-traps in Sloping Roof Glazing.

A and B show light-traps used in conjunction with existing opening lights, which are retained for adjustment of ventilation.

C and D show traps with adjustable baffles. In these cases opening lights are removed.

Fig. 9A, B, C, D, E and F. Light-traps in Lantern Lights.

A and B show traps used so that existing opening lights are retained for adjustment of ventilation.

C shows trap fixed in place of opening lights.

D, E and F show methods of using traps in the vertical openin lights of reinforced concrete and glass lantern lights.

* These figures not included in this printing.—[Ed. R.I.B.A. Jnl.]

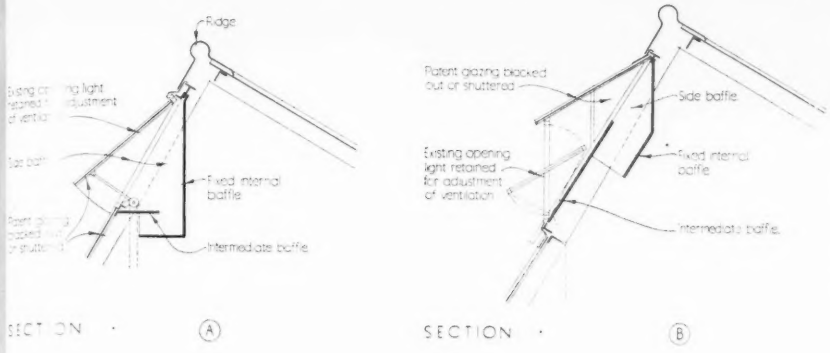


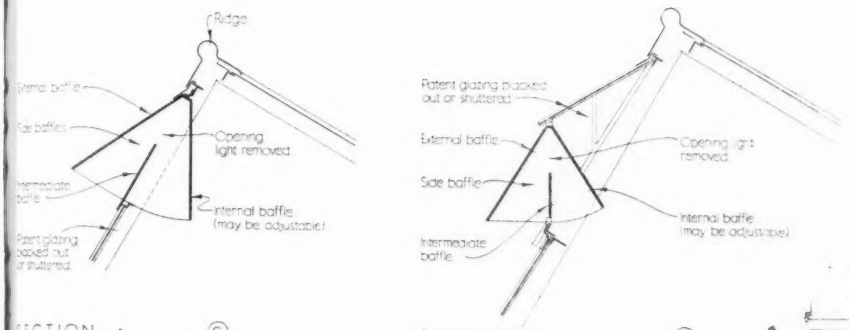
FIG. 10. VENTILATOR LIGHT-TRAP IN WALL.

This shows a simple arrangement for a ventilator in a wall.

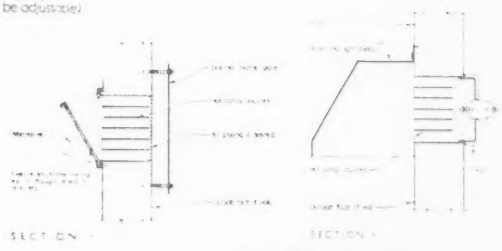
FIG. 11.

This shows an arrangement for trapping light where a simple extract fan is either in use or would be fixed.

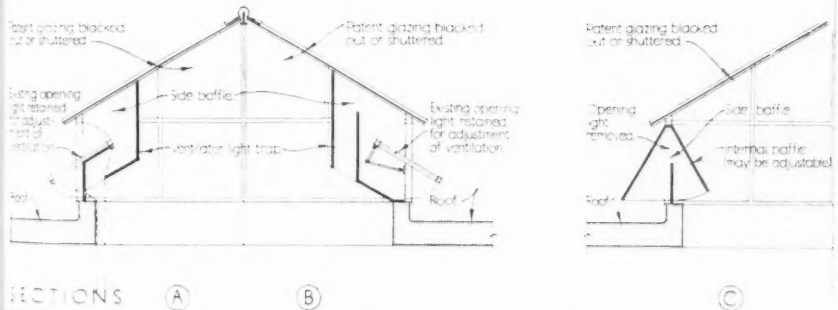
N.B.—It is possible to obtain proprietary devices which adopt generally the principle of the light-trap and combine a trap with an extract fan.

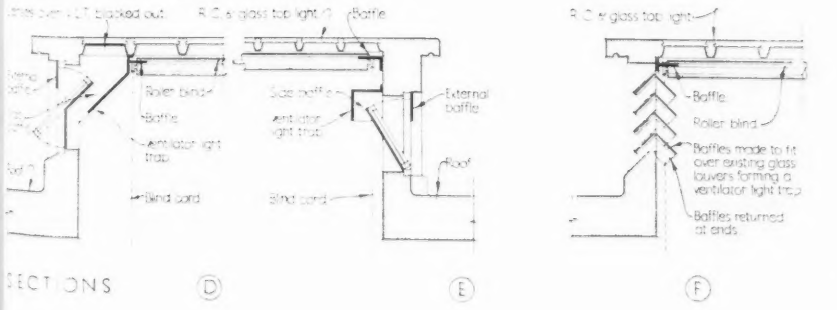


Figs. 8A—D



Above: Figs. 10 and 11





On left: Figs. 9A—F

CONFERENCE ON THE RECORDING OF WAR DAMAGE TO BUILDINGS OF MERIT

On Monday, 18 November, a conference was held at the R.I.B.A., under the chairmanship of Mr. W. H. Ansell, to consider proposals for the recording of war damage to buildings of merit. The conference was composed of representatives of the societies and individuals with special experience of work of this kind. The Memorandum printed below, the basis of the discussion, outlines the needs which the conference was concerned to meet. The direct proposal before the conference was that the task could only be fulfilled by the formation of a central National Buildings Record staff under the control of a National Advisory Council. This was agreed unanimously, and a committee was appointed consisting of the President of the R.I.B.A., Sir Kenneth Clark, on whose initiative the conference was convened, Mr. W. H. Godfrey and Mr. J. E. M. Macgregor, to work the plan out in detail and to approach the Minister of Works and Buildings with a view to obtaining his co-operation. Rapid progress has been made by this committee, which is not, however, yet ready to report back to the conference.

The history, past and future, of England is expressed in her buildings. The destruction of so many buildings of merit now has drawn attention to the need for accurate records of them.

THE NEED

The most superficially obvious need—the one from which the present discussion arises—is the need for good photographs for *present propaganda* (1). Photographs of this kind for use in the Press and by the Ministry of Information can be just "good views" of war damage which will ultimately provide an invaluable part of the *national war record* (2).

Another need, most obvious to architects and the owners of buildings of historical and architectural value, is to have *records to help those who will restore them* (3). The Press photographs mentioned above are seldom accurate or detailed enough to be much help. The architect needs drawings and accurate technical and historical data.

In many instances these already exist, but their whereabouts are unknown; they must be found and preserved. In many other instances no useful records exist, and they must be made before demolition squads destroy the building entirely.

Records of some specially good buildings must be made *before* they are bombed. Time will not allow more than a few buildings to be recorded completely in the chance of having the work done before bombing, but every architect knows of some which deserve it. Various societies are and have been doing this work, and scientifically made photographic surveys will now enable it to be done more accurately and swiftly.

The same records as those compiled in (3) will also *meet the needs of historians* (4). Their needs are wider, and the interpretation of the phrase "buildings of merit" must be made to include merit derived from historical and literary reference. *The architectural historian needs and will need record of whole streets and urban groups*—slum streets as well as many more elegant parts of cities in which the individual buildings will most probably never be rebuilt, and indeed may have to go in post-war replanning schemes. The only way to meet this need is by planned photographic survey. This leads to another need of first-class importance. *The town-planner's need for guidance as to the buildings* (5) which, because they must be preserved, will be controlling factors in replanning schemes. The knowledge which will be needed to assure good guidance in this must be accumulated *now*. The need for this can be instanced thus: All would probably agree that more or less whatever happens to it, short of complete abolition, St. Paul's Cathedral must remain—be reconstructed or stand, as Ypres Cloth Hall stands, as a relic—but must St. James, Piccadilly, be rebuilt, or the Carlton Club, if the post-war planners decide that for functional reasons it is desirable to drive a street or make an open space on its site? The new Ministry of Buildings must have authoritative information on matters such as this at its disposal or else reconstruction and replanning will be hindered, or uninstructed planners will sweep away monuments we should keep for posterity.

The destruction of 19th and 20th century buildings, in particular, is *revealing details of technical importance in their structures* (6). The alteration some years ago of the old *Morning Post* building gave a chance to study the condition of steelwork erected many years previously. Similarly, much is revealed by bombing which technical historians and building scientists can use—apart from the immediate need, which mostly is being met by the Ministry of Home Security, for technical information on the effect of bombing on structures.

The existence of all these direct and quite simple needs is sufficient reason for the *extension, centralisation and authorisation* of record work.

Most of the societies and many of the individuals now concerned with the collection of records are represented at the conference.

It must be for the conference to decide just how the objectives of the meeting can be attained. The following notes are meant as general guidance in the way the needs for records of buildings of merit can be met.

Extension.—There is no question whatever that the resources of the existing organisations, however generously they are used, are insufficient for lack of money, almost always, personnel, generally, and knowledge of up-to-date survey methods in all too many cases. Also, inevitably, their interests are localised in time or place. The Royal Historical Monuments Commission does not deal with buildings after 1714, the London Survey Committee and the L.C.C., a model in some respects, obviously deal only with London, and no other city has a similar work to its credit. The S.P.A.B. and the Georgian Group have *their* defined spheres and principles, etc. The newspapers and the Ministry of Information are inevitably concerned with things of current news value.

Centralisation.—Extension without centralisation is useless—is, in fact, disorganisation. Centralisation will not mean putting voluntary effort out of business, but will be able to help it and lead to economies. It can assure the issue of permits for entry and photography to useful workers who could not otherwise get them.

The existence of a central staff will enable records to be collated and preserved, and will provide individual workers with a centre to which they can refer.

Centralisation and the publication that will emanate from the centre will in itself be a stimulant for intelligent action. It is easy to picture the bewilderment of some householder or owner of a "building of merit" when his building is damaged; he cannot control the enthusiasm of demolition squads; he may not know the value of his building or what can be done to preserve it. Knowledge that a central authority is there to help him will be the first step towards wise preservation—or demolition.

Authority.—Unless the work receives Government authority both centralisation and extension will be ineffective. The Government is trustee for the historical and artistic heritage of the country. This does not mean that the voluntary organisations will be made "official," but that the central staff of the record service will be working under Government authority, will be enabled to act quickly and with assurance.

The purpose of the conference has deliberately been described as "*to initiate* a scheme." This means that the conference must decide not only that it wants to do something, but what to do and how to do it.

PHOTOGRAPHIC RECORDS OF BUILDINGS

By P. J. WALDRAM, F.S.I.

On another page of this JOURNAL *there are notes on the conference which was held on Monday, 18 November to consider the recording of war damage to buildings.*

In the course of the discussion many references were made to photography as the chief means by which accurate records can be obtained quickly.

Photography can provide much more than "a picture" of a building giving a general impression of its appearance. If certain rules are obeyed it is possible for a photograph to give all the information wanted to scale off every detail of the building visible in the picture. The value of this method of obtaining an accurate survey of a building is obvious, though the method is little known and hardly at all used. To make an accurate graphic survey of even a simple façade may take a morning in measurement on the job, the use of considerable tackle, including ladders, and manual assistance, and another morning's work drawing out the record in the office. To make an accurate photogrammetric survey of the same façade may take time to be reckoned only in minutes.

The following article by Mr. Waldram describes some of the general principles of simple photogrammetric survey of buildings. More elaborate surveys can be made, and our attention has been drawn to an article to be published in the "Photographic Journal" in January by Mr. A. van Anrooy, in which it is contended that for certain special cases cylindrical perspective is to be preferred to plane perspective for facility and accuracy of measurement from photographs. The special photographic equipment and method relation to cylindrical projection are generally described in this forthcoming article.—ED.

The attention of property owners has often been called to the desirability of preserving measured surveys of buildings having windows over 20 years old which, without such records, might lose valuable rights of light in the event of a severe fire.

The risk of damage or total destruction by air raids has drawn attention to the need for accurate surveys of buildings and the recent Conference at the R.I.B.A. on the need for recording buildings of merit in this country has opened the possibility of a national building record being formed. Of a great majority of the finest buildings in Britain no measured records exist which would be available for restoration or reconstruction. The need for them now appears as an urgent problem.

The time is therefore opportune to emphasise that, by means of controlled photography, it is possible in a few minutes to obtain the equivalent of measured surveys which would otherwise entail weeks of patient and expensive work.

The system is known as photogrammetry, but the length of the title need occasion no apprehension to the photographer, amateur or professional. It is essentially simple, and the part taken in it by the photographer is simplicity itself, consisting of merely taking a few small precautions before taking any photograph, and carrying out a few easy operations, equally simple, in order to render possible the subsequent work of a surveyor colleague carrying out the photogrammetric analysis of the finished prints, and to assist that work.

It is, however, desirable that the photographer should understand at least the general principles of the photogrammetric system which is to be applied to his work, if only to appreciate the materiality of the few precautions and operations demanded of him or her, to assist in memorising them, and to be qualified to add to them in any way which will assist the surveyor.

One such system is that described in detail in articles which appeared in the JOURNAL of 17 June 1933 and 24 March 1934. These have since been reprinted and are available in pamphlet form under the title of "The Use of Photographs in Town Planning and Design" (P. S. King & Son, Great Smith Street, Westminster; 2s. 6d.).

Very briefly, under the system therein described, the photograph is considered as being essentially a true perspective, of which the viewpoint is the equivalent optical centre of the camera lens used, which is situated at a distance from the perspective picture plane equal to the focal length of the lens.

A perspective view is drawn on transparent paper of a hemispherical cage of thin wires representing angles of elevation and bearing from the axis of view, the radius of the hemisphere and the distance in the perspective from the viewpoint to the picture plane being also the focal length of the lens used. Such a transparent perspective, when properly superimposed over the photographic view, will at once fix the angular elevation and bearing measured from the lens position of each and every point on the photograph from the axis of view.

If a surveyor accustomed to trigonometrical work is supplied with a photograph of, say, a façade, and is able to superimpose over it such a web of angles from a *known* lens position, he has little or no difficulty in calculating every dimension over the face of the façade as fully as if he had laboriously measured it up from ladders or a scaffolding.

Even from this brief description it will doubtless be obvious that without knowledge of the focal length it would have been impossible for him to have set out the essential web of angles, and without exact particulars of the position of the camera lens when the photograph was exposed, in relation to the object photographed, he would have had no trigonometrical base line from which to calculate his dimensions vertically and horizontally.

It will also be obvious that the point on the photograph where the axis of view intersects the picture, and from which the essential angles of elevation and bearing are fixed by the superimposed web of angular co-ordinates, is very important and even vital to accurate work, and that the position of this point on the camera focusing screen is affected if a rising front to the camera is used.

If also the camera be tilted up or down, so that the axis of view is not horizontal, parallel vertical lines in the view will be distorted in perspective, and this will greatly increase the work of the surveyor. The articles quoted give directions for ascertaining any angle of tilt, but this involves the setting out of a special transparent web, a very lengthy process, whereas webs set out with the axis of view horizontal, tilted upwards at 45 degs. and vertical can be obtained, as described in the articles, for any given focal length by photographic enlargement or reduction from standard webs which are available. If more extended use of the system should indicate the need, standard webs could also be made available for angles of tilt of 30 and 60 degrees. If, therefore, the photographer *must* tilt, it should be to one of these angles and checked.

Whenever it is desired that a photograph be used subsequently as a measured survey (and in all photographs of buildings the possibility of photogrammetric analysis is too valuable to be neglected), the photographer should have constantly in mind the needs of the surveyor who will have to translate his prints into dimensions.

For this purpose it is helpful always to use a camera with some form of ground glass focusing screen bearing horizontal and vertical lines intersecting at the axis of view at the centre. If the camera has a rising front additional horizontal lines should correspond with marked positions of the rising front.

The calls on the photographer can readily be appreciated from consideration of the case of a simple façade.

The first requirement of the surveyor will obviously be a plan indicating the axis of view in relation to the façade. In order to superimpose properly on the print his essential transparent web of angles he will also require to reproduce on it lines of 0 deg. elevation and 0 deg. bearing, *i.e.* the horizontal and vertical lines intersecting at the axis of view recommended above for the ground glass focusing screen of the camera. In the articles quoted it is suggested that small arrow heads should be fixed in the sides and top and bottom of the plate or film carrier such as would appear on the prints taken and provide registration points which can be joined by the horizontal and vertical lines intersecting

at the axis of view. This, however, involves special fitting, and with some cameras is not feasible. With the aid of the intersecting lines on the focusing screen the photographer should have little or no difficulty in ensuring that the essential intersection of the axis of view with the façade will be obvious on the final prints.

Having set up and levelled the camera and focused the view, the photographer should so align its direction that the axis of view falls, if possible, on some convenient vertical feature of the façade such as a reveal. The height at which the axis of view indicated by the intersection of the vertical and horizontal lines on the focusing screen cuts this vertical line in the picture should now be marked on the façade in some way which will be obvious in the finished photograph. A boldly chalked white cross on a dark facing or the top of a 5-ft. black measuring rod leaning against a light-coloured facing will often come out quite clearly in the prints. Another obvious expedient is a short horizontal cross-bar sliding on, and capable of being fixed at any position on a vertical rod with a suitable base. If both be painted black and white in 6-in. lengths they will not only be obvious against facings of any colour, but can also be used as a short scale of dimensions.

A rising front should obviously only be used at a marked position with which a horizontal line on the focusing screen corresponds.

Dimensions should then be measured carefully from the lens centre to the selected vertical reveal and to other points on the façade, located by suitable dimensions from the vertical reveal, in order to fix the relation of the plane of the façade with the axis of view as exactly as possible, figured on the plan and checked by re-measurement, if possible independently. This, of course, can be done single-handed if necessary, together with the operation of fixing on the façade the registration mark, whatever it may be, indicating the intersection of the axis of view with the plane of the façade. Time will, however, be saved and accuracy enhanced by working with an assistant or colleague.

As the ordinary camera bubble level can scarcely be relied upon for accurate levelling, it is desirable to take some trouble to ensure that the axis of view is exactly horizontal, even to the extent of checking with a dumpy level and staff the levels of the lens centre as set up and the registration mark on the façade.

The photographer who understands and appreciates the nature of the subsequent work of the surveyor will then naturally look out for opportunities of recording some long vertical dimension or dimensions which should correspond with, and form a check upon, the surveyor's calculated results. He will make sure that all data are clearly recorded and in particular, before exposing, that the lens centre has not been accidentally shifted.

All this may appear to be a long programme of tedious preliminary two-handed work to be done before each exposure : but if carried out as routine procedure it does not take long. Even if the work be troublesome and the employment of an assistant be inconvenient, it is surely worth some time and trouble in order to obtain an invaluable accurate survey in place of what would otherwise be merely a picture which, whatever its interest, sentimental value and artistic merit, is of little or no use as a guide to assist practical reconstruction or restoration.

In the foregoing mention of one important precaution has been deliberately omitted in order to give it added emphasis. The focal length of the lens used *must* be recorded. It should be found engraved on the brass lens casing in inches or millimetres.

Photographs are invariably taken without any record of the position of the lens in relation to any object in the field of view or of the focal length of the lens, to the intense exasperation of anyone who requires the practical information which they display tantalisingly just out of reach. They should not, however, for that reason necessarily be discarded for photogrammetric purposes. They *may* embody evidence from which the missing data can be deduced. For example, they should be examined carefully for vertical coincidence of any permanent object in the foreground with any undisturbed object in the background, indicating that the camera was set up on the line joining the two. Two, or preferably three, such lines would serve to establish the position of the lens centre on plan. This is no small gain, because examination of the perspective of level courses of masonry or brickwork will often enable its height to be fixed also, at least approximately. The ascertained height of some undisturbed object or objects or some measurable dimension on plan may then enable the surveyor to deduce the focal length and to proceed as if all the essential data had been duly recorded.

Even a short experience with photogrammetric analysis may enable an architect or surveyor to deduce valuable information from photographs which are apparently merely hopelessly pictorial.

In the reprinted articles quoted an example is given of a successful photogrammetric survey of an old building at Kingston which had been demolished without any record beyond a small snapshot of an adjoining bridge. The survey was sufficiently complete to enable the technical advisers of the parties to an expensive dispute to agree upon fundamental data and thus to reduce the costs on both sides materially.

Photogrammetry, in spite of its unprepossessing name, can often be as interesting as a detective story.

Compensation and Betterment in Town and Country Planning

A Report by the Town Planning Institute

The following note on the Report has been issued by the Town Planning Institute

The Town and Country Planning Advisory Committee appointed by the Minister of Health, in their Report on the Preservation of the Countryside, dated July 1938, drew attention to the way in which essential schemes for preservation were hampered by the present cumbersome machinery of compensation and betterment. The Advisory Committee recommended that, when the Royal Commission on the Distribution of the Industrial Population had reported, an investigation should be carried out into the present working of compensation and betterment and its effect on planning, etc.

The Council of the Town Planning Institute had for long been aware of the difficulties referred to and they had been discussed by its members. In view of the recommendation of the Advisory Committee, the Council appointed a Committee of the Institute to investigate the whole problem. The Institute is peculiarly well fitted to undertake such an investigation as it is the professional body whose members are responsible for the preparation of planning schemes and includes among its members specialists in architecture, engineering, surveying and law.

The Report of the Committee was presented to and adopted by the Council in May 1940. Meanwhile (January 1940) the Royal Commission had issued their report in which they referred to the difficulties of the situation and recommended that the Government should appoint a body of experts to examine the questions involved.

The Report of the expert committee appointed by the Institute comprises a review of existing legislation on the subjects of compensation and betterment and the acquisition of land by public authorities and a description of its evolution. Various reforms that have been recommended from time to time are also described and foreign practice is outlined in an appendix. The report concludes with a chapter in which the problem and suggestions for its solution are discussed as a whole and definite recommendations are made. Most of the amendments proposed relate to the Town and Country Planning Act as related to England and Wales. Consequential amendments would be necessary to the adaptations and modifications of the Act in its application to Scotland.

Principal Findings and Recommendations

(1) After carefully considering all aspects of the question, the Committee are satisfied that essential planning and particularly

replanning cannot be carried out effectively under the existing legislation governing compensation and betterment ; nor under any development of a system which involves the separate assessment of compensation and betterment in respect of each individual interest.

They do not find that existing legislation is, in general, unjust to either private or public interests, although they recommend a number of amendments to mitigate existing anomalies. But they do find that the multiplicity and variety of interests that have to be taken into account are a permanent and formidable obstacle to the achievement of positive results by statutory planning.

(2) Consequently, they express the opinion that in cases where private ownerships present an obstacle to securing planned development, re-development or conservation on an economical basis, essential simplification and equity are likely to be best achieved by wholesale purchase of areas by planning authorities. To facilitate this, they recommend an amendment to Section 25 of the Town and Country Planning Act and couple their general recommendation on this aspect of the subject with an observation pointing out how essential it is that all publicly owned land should be subject to planning control under Town and Country Planning Schemes.

(3) Attention is drawn to the anomalies of the present position under which, for example, land is valued by one authority for the purpose of death duties and by another for rateable value. It is recommended that all the land in the country should be planned, and should be valued by one authority at one time, upon uniform principles. Such valuation to be revised periodically, at intervals of, say, five years, and to govern the terms of purchase by public authorities and to serve as a datum line for the assessment of compensation and betterment.

The bulk of the land in England is already being planned, and the small balance in that country and the greater balances in Scotland and Wales should forthwith be brought under planning control. This having been done, coupled with the proposed amendments to the Act, and followed by the universal valuation recommended, should have the effect of meeting the views of the Town and Country Planning Advisory Committee and enable planning schemes to secure rural preservation on a sound and fair economic basis. It should also check extravagant claims in connection with schemes for the re-development of built-upon areas.

(4) The Town and Country Planning Act already enables a scheme to provide that a number of its provisions shall not give rise to claims for compensation. The following recommendations are, in the main, directed to clarifying certain anomalies in these provisions and to extending their scope, in the light of experience, but without infringing the provisions safeguarding private interests.

(5) Since 1909, it has been lawful for schemes to provide for the exclusion of compensation in respect of provisions which prescribe the space about buildings or limit the number of buildings. This helps to secure adequate living space, but of almost equal importance is the proper siting of buildings so that one may not obstruct light or view from another and so that they may be disposed on the ground with due regard to convenience and amenity. To meet this point, the Committee recommend that "siting" should be added to the provisions that may be excluded from compensation.

(6) It is essential that high quality agricultural land should not be put to other uses, except for considered and valid reasons. Unfortunately the Town and Country Planning Act ignores agriculture, except, unhappily, to exclude most agricultural buildings from most of the provisions of planning schemes. The Committee make recommendations with a view to making it economically possible for a planning scheme to protect agriculture from serious interference.

(7) It is pointed out that the provision of roads is an essential part of residential development and that the provision of open spaces is now regarded as a normal requirement. It is, therefore, recommended that schemes should be entitled to require an owner, before offering land for sale or lease for building operations, to submit an adequate layout plan. Also, that in such plan he should be required, without compensation, to allocate not more than thirty-five per cent. of the area for the purposes of streets and open spaces, or to make a cash payment in lieu of such allocation, such payment to be used by the planning authority for the provision of open spaces in or adjacent to the land in question.

The Committee also commend the recommendation of Mr. A. Noel Mobbs to the Royal Commission on the Distribution of the Industrial Population that in order to provide finance for the reservation of open spaces and playing fields, a charge of 5 per cent. might be made on the cost of new buildings in areas zoned for industrial development and housing in connection therewith.

(8) Under the Town and Country Planning Act, existing buildings and uses are protected and cannot, without compensation, be interfered with. This greatly hampers the improvement of backward areas and the Committee consider it to be unreasonable that all existing buildings and existing uses should be protected indefinitely, particularly as the only buildings or uses requiring any such protection must, *ex hypothesi*, be such as are out of place having regard to the proper planning of the locality and may be at an excessive density according to all reasonable standards of health.

It is, therefore, recommended that no compensation shall be payable if such buildings or uses are given a life of not less than 20 years, or such longer period as the scheme may provide. The last words are added in order to meet the case of a non-conforming building erected shortly before preparation of the planning scheme began.

(9) The working of minerals presents grave problems in connection with planning. Surface working destroys and leaves derelict large areas of good land, and underground working causes subsidence which renders building unsafe and causes flooding and seriously interferes with sewage disposal, etc.

The gravity of the problem presented by the surface working of iron ore was recognised by the Government when they appointed a Departmental Committee, under the chairmanship of Lord Kennet, to report on the matter. Iron ore is, however, only one form of despoilment ; large areas of land are also laid waste by the removal of gravel, sand, clay, etc.

In the present report, it is fully recognised that minerals are an important national asset and that no unnecessary obstacle should be put in the way of their working. It is also recognised that there are other assets and that, therefore, a reasonable balance has to be found. At present, mineral working is amply protected by the Town and Country Planning Act and it is not suggested that this protection should be reduced. On the other hand, it is strongly recommended that the owner should not be allowed to have the best of both worlds but should be required to choose between mineral value and building value. The amendment proposed would enable a scheme to secure that when surface minerals have been exploited, no building value shall attach to the land and that, consequently, the land will be available for open space uses or for agriculture or afforestation at a value which makes such uses practicable. Another effect of the amendment should be to prevent building upon unsuitable excavated surfaces or land liable to subsidence owing to the extraction of minerals.

(10) The Town and Country Planning Act provides for the payment of compensation in full but only allows betterment to be recovered to the extent of seventy-five per cent. The Act also includes complicated provisions designed to ensure that recovery shall not take place until the benefit has been actually realised and limiting the time in which recovery can be claimed to a period of 14 years.

The Committee do not quarrel with the principle of postponement of recovery until benefit is realised, but as planning schemes are based on long-term policy they consider that the period of recovery should be extended to at least 20 years and they see no reason why betterment should not be placed on the same footing as compensation and the whole be made recoverable.

MEMBERS SERVING WITH THE FORCES

This tenth list of members serving with the Forces includes only the names of members whose *rank and unit* have been notified to the R.I.B.A. It is impossible to guarantee complete accuracy. We shall be glad to receive corrections and additions. Promotions notified to the R.I.B.A. are recorded. For much of this information we cannot be dependent on the serving members themselves and so must rely on the kindness of their friends and relations.

KILLED ON ACTIVE SERVICE

MANSER, H. A. [*L.*], Lieut. R.E.

PRISONERS OF WAR

MANSEL, J. W. M. [*A.*], Capt.
VINE, S. F. [*Student*], Bdr. R. A.

PRISONER OF WAR IN NORWAY

DAVISON, P. L. [*Student*], 2nd-Lieut. York and Lancaster Regt.

UNITS AND RANKS OF SERVING MEMBERS

ADAMSON, J. E., D.S.O. [*L.*], Lieut.-Col. Pioneer Corps.
ALTHAM, C. J. [*Student*], Sapper R.E.
ALTON, J. P. [*Student*], Ord. Seaman R.N.
AP THOMAS, I. [*A.*], Tpr. R.A.C.
ARTHUR, P. R. [*Student*], Spr. R.E.
BAKER, J. H. [*A.*], 2nd-Lieut. R.E.
BEAUMONT, H. C. [*A.*], Spr. R.E.
BLIGH, J. R. de C. [*A.*], Fusilier, R. Fusiliers.
BLOCKLEY, L. H. [*Student*], O. Cadet R.E.
BODDINGTON, H. C. B. [*Student*], Signalman Royal Corps of Signals.
BOOL, M. R. [*A.*], Gnr. R.A.
BOZIER, G. A. [*Student*], A.C.2 Wireless Operator/Air Gunner R.A.F.V.R.
BRETT, R. K. [*A.*], L/Cpl. R.A.S.C.
BRIERLEY, E. W. [*Student*], Gnr. R.A.
BRIGHT, G. N. [*Student*], Cadet R.A.
CAROE, A. D. R. [*F.*], Flying Officer R.A.F.V.R.
CASTLE, G. R. [*A.*], Spr. R.E.
CAUSON, A. H. [*A.*], Cpl. R.E.
CLAYTON, K. W. [*Student*], Spr. R.E.
COLES, R. H. [*A.*], A.C.2 R.A.F.
COOPER, H. C. D. [*A.*], 2nd-Lieut. R.A.
CORFIELD, C. W. Roger [*St.*], 2nd-Lieut. R.A.
CORKILL, H. W. [*A.*], 2nd-Lieut. R.A.
COUSINS, F. W. [*A.*], 2nd-Lieut. R.E.
COX, G. M. [*L.*], Capt. R.A.F.
CRABTREE, William [*A.*], 2nd-Lieut. R.A.
CREAK, Harold [*Student*], Gnr. R.A.
CROOK, Peter H. [*Student*], Cpl. R.A.S.C.
DAWBARN, C. Y. [*A.*], Capt. R.A.
DEY, W. G. [*A.*], Guardsman, Scots Guards.
DOVEY, G. C. [*Student*], Cpl. R.E.
EDLESTON, W. E. [*A.*], Lieut. R.E.
FAIRTLOUGH, A. C. [*A.*], P.O. R.A.F.
FARQUHAR, L. G. [*F.*], Capt. Gordon Highlanders.
FENNELL, T. E. [*A.*], Gnr. R.A.
FLACK, A. W. [*A.*], Gnr. R.A.
FLAVEL, G. R. S. [*A.*], Sub-Lieut. R.N.V.R.
FREEMAN, P. G. [*A.*], Staff-Lieut. R.E.
GAMBLE, Alan D. [*A.*], Ord. Seaman R.N.
GAMMANS, R. A. N. [*L.*], Lieut. R.E.
GARROD, A. R. [*Student*], L/Bdr. R.A.
GARTON, A. E. [*A.*], Spr. R.E.
GEALL, P. D. [*L.*], C/W Liaison R.E.
GIBBERD, H. [*A.*], Cl. Sp. Duties R.A.F.V.R.
GOODHART-RENDEL, H. S. [*F.*], Lieut. Grenadier Guards.
GOULD, G. D. [*Student*], Pte. N.C.C.
GRAHAM, J. N. [*Student*], 2nd-Lieut. R.A.
HACK, R. A. [*St.*], O. Cadet Artists Rifles.
HARE, H. Locksley [*A.*], L/Cpl. R.A.S.C.
HAYES, T. B. [*Student*], Officer Cadet R.E.
HECKINGBOTTOM, F. [*A.*], Gnr. R.A.
HEGGIE, Maurice, Jnr. [*Student*], Spr. R.E.
HENDRY, H. Duncan [*F.*], Staff Capt. R.E.
HIRD, J. G. [*A.*], L Cpl. R.E.
HODGESS, Ivan S. [*A.*], Capt. R.E.
HOLDING, E. de Wilde [*L.*], Lieut. Pioneer Corps.
HOLLOWAY, S. M. [*Student*], Cpl. R.A.F.
HUGHES, J. K. [*Student*], Gnr. R.A.
HUNTER, A. McK. [*A.*], Spr. R.E.
JACOB, J. H. [*L.*], Major R.E.
JONES, Thomas Edward [*A.*], Capt. R.E.
JOSEPH, P. L. [*A.*], Spr. R.E.
KENNEDY, John F. [*Student*], Cadet R.E.
KILNER, L. [*A.*], Gnr. R.A.
LANCHESTER, H. R. [*A.*], L.A.C., R.A.F.V.R.
LESTER, P. F. [*L.*], Bimbashi, Sudan Defence Force.
LEWIS, R. K. [*A.*], S/Sgt. R.E.
LLOYD, S. J. [*Student*], A.C.2 R.A.F.V.R.
LOMAX, R. F. [*A.*], Sergt. East African Engineers.
MCKAY, J. [*A.*], Gnr. R.A.
MASSEY, Lawrence [*Student*], Sapper R.E.
MILSOM, F. G. [*Student*], Spr. R.E.
MITCHELL, C. J. [*Student*], Spr. R.E.
NICHOLLS, John [*A.*], 2nd-Lieut. R.A.
OSTICK, C. D. [*A.*], Pte. King's Own Royal Regt.
PADGET, M. W. [*A.*], Lieut. R.E.
PATERSON, R. W. [*A.*], L/Bdr. R.A.
POOLEY, F. B. [*A.*], Staff-Sgt. R.E.
POORE, M. V. F. [*Student*], O.S. R.N.
POWELL, A. H. [*F.*], Capt. R.E.
PRICE, Eric J. [*Student*], L/Bdr. R.A.
PRIDE, F., M.C. [*L.*], 2nd-Lieut. R.E.
REAY, Donald P. [*A.*], Flight-Lieut. Royal Canadian A.F.
RITTER, Eric E. [*Student*], 2nd-Lieut. R.A.
ROBERTSON, D. O. [*Student*], Spr. R.E.
RUTHERFORD, R. K. [*A.*], 2nd-Lieut. R.E.
SARTAIN, S. Philip [*A.*], Capt. R.E.
SCARD, H. E. A. [*A.*], C. Pilot R.A.F.V.R.
SCOTT, Wm. J. [*A.*], S/Sgt. R.E.
SEARLES, D. F. [*Student*], E.D. L/Cpl. R.E.
SLOAN, T. F. [*Student*], Signalman Royal Corps of Signals.
SMITH, R. V. R. [*Student*], A.C.2 R.A.F.
STEELE, D. R. [*A.*], Driver R.A.S.C.
TAYLOR, A. R. [*A.*], Pte. Hampshire Regt.
TAYLOR, Douglas S. [*A.*], 2nd-Lieut. Middlesex Regt.
TREGONING, V. A. [*St.*], A.C.2 R.A.F.V.R.
TRELEAVEN, R. H. [*Student*], Ord. Seaman R.N.
TROKE, Walter E. [*Student*], Sub-Lieut. R.N.V.R.
TURNER, N. G. E. [*A.*], Signalman R.C.S.
VERSINO, A. G. [*Student*], L/Cpl. R.E.
WATSON, Alex [*A.*], A.C.2 R.A.F.V.R.
WAUGH, E. W. R. [*A.*], 2nd-Lieut. South African Field Artillery.
WHITEHORN, J. E. [*Student*], Troop Sgt.-Major, Royal Horse Artillery.
WHITWELL, E. J. [*A.*], 2nd-Lieut. R.E.
WILKINSON, J. [*Student*], Signalman R.C.S
WILSON, J. C. [*A.*], L/Bdr. R.A.
WOOD, J. D. [*A.*], Flight Lieut. R.A.F.
WOOD, T. R. [*A.*], Major R.E.
WRAGGE, N. O. [*A.*], L/Bdr. R.A.

CORRESPONDENCE

INVESTIGATION—CONCRETE CONSTRUCTION

Cement and Concrete Association,
at 15 Turl Street, Oxford

To the Editor, JOURNAL R.I.B.A. *28.11.40*

DEAR SIR,—It is inevitable that concrete will play a greater part in building after this war than ever before, particularly in regard to house construction. In the past proper consideration has not been given always to the best method of using concrete as a building material, and it has not been realised fully that tradition and ordinary experience are an insufficient guide if the best results are to be obtained.

In order to provide definite information and data to assist in future development, I am undertaking on behalf of the Cement and Concrete Association an investigation in regard to concrete structures, mainly at present of a domestic character—houses and flats.

The investigation is intended to cover as wide a field of experience as possible, and therefore a comprehensive list of buildings, without regard to merit, is necessary. It is in the compilation of such a list that I should like to invite the assistance of members of the Institute.

Examples are required which have a concrete frame or have the external walls constructed of concrete in some form, either *in situ* concrete or precast concrete units. I might say that the Cement and Concrete Association have particulars of most of the examples of concrete construction which have been published in the professional and technical Press, but there are many other examples throughout the country which are not so well known.

I should be very grateful for a note of any examples which might be useful in the investigation, with the following information :—

(1) Description of building and, if more than one, approximate number.
(2) Location—sufficient information to enable example to be found.
(3) Owner, architect, builder, or other authority.
(4) Type of wall construction.

The date of construction and any other relevant information would, of course, be useful.

If any member cares to let me have an opinion on any particular form of concrete construction and suggestions as to improvement, based on experience, they also would be very much appreciated.

Yours faithfully,
ARTHUR G. BRAY [*F.*]

Notes

THE PRESIDENT IN LEEDS

In place of the annual dinner and dance, the West Yorkshire Society of Architects held a luncheon at the Guildford Hotel, Leeds, on Thursday, 28 November. The new President of the Society, Mr. J. E. Stocks, presided over a meeting of over 100 members, the guest of honour being Mr. W. H. Ansell, President of the R.I.B.A. Other guests included Sir Ian MacAlister, Sir William Nicholson, Professor Hamilton Thompson, Alderman Willie Withey, Lord Mayor of Leeds, Alderman W. Illingworth, Lord Mayor of Bradford, Colonel W. S. Cameron, Leeds City Engineer, and Mr. E. H. J. Stewart, Regional Technical Adviser to the North-Eastern Area.

In his opening address, Mr. Stocks referred to the wartime work of the Society, particularly in connection with A.R.P., and expressed the hope that post-war reconstruction would meet with better success than the replanning of London after the Great Fire. He referred sympathetically to the students of the School of Architecture, whose studies had been interrupted and who were now serving with the Forces.

Professor Hamilton Thompson, proposing the health of the R.I.B.A., paid a tribute to the Institute presidents who gave up their valuable time to come amongst the members of the Allied Societies. Whilst regretting the great loss of historical and architectural buildings of London, Coventry, Bristol and other cities, he expressed the hope that the architects of the present generation would take a prominent part in the shaping of the new order for Europe which Britain and not the Axis partners would bring about.

Mr. Ansell, replying to the toast, paying tribute to the Yorkshire spirit which he said was to be found all over England, described the effects of the war on the profession. Whilst regretting the failure of the authorities to make full use of the services of the architect in the earlier months of the war, he noted that the War Office and the new Ministry of Works and Buildings now fully appreciated the particular ability which the architect possessed. He pointed out that it had taken some little time to convince some members of the Government that the conception of the architect as someone who added the decoration to an otherwise normal and well-constructed building was in no sense true of the present generation. Whilst stressing that above all things the war must be won first, he felt that someone must already be thinking of what would happen afterwards. These thinkers should certainly include those skilled in planning. It was true that the architect's function was to plan and construct, but the President would continue to point out that the architects will always have something more to contribute to building than the engineer, as engineer. He explained that the R.I.B.A. as spokesman of its members will go forward, conscious of the new role which architects must play. Referring to the fact that many of the young men of the last war felt that they came back to a hard world, the President pointed out that the R.I.B.A. was a young man's society (a young man had designed their headquarters) and would continue to safeguard the interests of its younger members.

Alderman Illingworth, in his speech, mentioned that he was the first architect Lord Mayor of Bradford for 93 years, and emphasised the importance of schedules of property with plans and photographs being prepared so that in the event of bombing adequate records would be available for purposes of compensation or rebuilding.

This is the first official function which the new President, Mr. Ansell, has been able to attend outside London, and is significant in showing that he is determined to keep in close contact with all members of the Institute. This is particularly appreciated in Yorkshire.

FIRST PROSECUTION UNDER THE ARCHITECTS REGISTRATION ACT

Improper Use of the Title "Architect"

At Waltham Abbey Police Court on 12 November, Mr. Arthur Gilbert, auctioneer and surveyor, was fined £10 10s., with £5 5s. costs, for "carrying on business under the name, style and title of architect when he was not a registered architect." The charge was brought by the Architects Registration Council, whose counsel said that they did not press for the maximum penalty of £50, but asked for an adequate penalty to emphasise the seriousness of the matter.

Mr. Gilbert had advertised in a local paper and described himself as an architect. He stated that for 35 years his firm had employed an architect, by which means they had been entitled to use the title; the architect employee had left at the start of the war, and by oversight the word "architect" had not been removed from the firm's notepaper and he had forgotten the advertisement. He had taken no steps to become registered. This was the first case brought by the Council under the Act.

THE MINISTRY OF WORKS AND BUILDINGS

Mr. George Hicks, M.P. [*Hon.A.*], has been appointed Parliamentary Secretary to the Ministry of Works and Buildings, and will be the Ministry's spokesman in the House of Commons.

Mr. Hicks, who is M.P. for Woolwich East, entered the House in 1931. In 1921 he became secretary of the Amalgamated Union of Building Trade Workers, and is president of the National Federation of Building Trade Operatives.

ARCHITECTURALLY QUALIFIED PROPERTY MANAGER WANTED

A London property company invite applications from suitable persons for the post of managing a number of residential buildings. Applicants should have architectural and surveying qualifications, and have had extensive experience in property management, administration and be well used to the control of departments and their staffing.—Box 1312, c/o Secretary R.I.B.A.

Membership Lists

ELECTION: JANUARY 1941

An election of candidates for membership will take place in January 1941. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Byelaws are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary R.I.B.A. not later than Thursday, 26 December.

The names following the applicant's address are those of his proposers.

AS FELLOWS (4)

Carter: Peter George Jeffery [*A.* 1926], 83 High Street, Watford, Herts; "The Small House," Temple Close, Watford. H. Kenchington, H. Colbeck and J. R. Young.

Peat: John Trevor Williams [*A.* 1934], Borough Engineer and Surveyor, Southgate Borough Council, Town Hall, Palmer's Green, N.13; 2 St. Thomas Road, Southgate, N.14. E. Smith, P. Thomas and J. Stuart.

And the following Licentiates who are qualified under Section IV, Clause 4 (*c*) (ii), of the Supplemental Charter of 1925:—

Binns: Henry William, F.S.I., 19 Southampton Place, W.C.1; 2 The Lodge, Kensington Park Gardens, W.11. W. B. Simpson, L. R. Guthrie and H. A. Hall.

Wright: Alexander, 110 Blythswood Street, Glasgow, C.2; 3 Westbourne Terrace, Glasgow, W.2. J. Lochhead, A. Balfour and A. G. Henderson.

AS ASSOCIATES (15)

The name of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Allen: Theophilus Philip [The Polytechnic, Regent Street, London], 125b Adelaide Road, Hampstead, N.W.3. J. Addison, J. K. Hicks and H. Bennett.

CATHERY : EDMUND LAURIE [Final], 26 Plashet Road, West Ham, E.13. J. Addison, H. A. Welch and F. J. Lander.

CROOK : PETER HOWE [Architectural Association], 2 Chiswick Place, Eastbourne. G. A. Jellicoe, C. L. Gill and A. W. Kenyon.

DOBSON : GRAEME GIBSON, Dip.Arch.(Distinction)(L'pool) [Univ. L'pool], Foswell View, Montrose Road, Auchterarder, Perthshire. Prof. L. B. Budden, E. R. F. Cole and B. A. Miller.

GARROD : ANTHONY ROLAND [Arch. Assn.], 27 Church Row, Hampstead, N.W.3. G. A. Jellicoe, A. W. Kenyon and J. M. Easton.

HENDERSON : JAMES MURIE [Final], " West View," 11 Glasgow Road, Uddingston. J. Lochhead, L. W. Hutson and T. H. Hughes.

HYDE : LEONARD ARTHUR [Final]. 46 Stanway Road, Earlsdon, Coventry. C. E. Bateman, A. Hale and W. S. Hattrell.

KEARSLEY : EDMUND DONALD [Leeds School], Meltham Mills Vicarage, near Huddersfield. F. L. Charlton, G. H. Foggitt and N. Culley.

LEMON : ARTHUR LYALL CHISHOLM [Aberdeen School, Robert Gordon's Technical College], 23 Gurney Street, Stonehaven. A. G. R. Mackenzie, J. G. Marr and R. L. Rollo.

MARSHALL : EDWARD WELDON [Arch. Assn.], Cranford, Warminster, Wilts. G. A. Jellicoe, A. W. Kenyon and C. L. Gill.

MURPHY : FRANK FINBAR, B.Arch. [Univ. College, Dublin], 46 South Mall, Cork. D. A. Levie, J. J. Robinson and F. G. Hicks.

PASCALL : CLIVE [Arch. Assn.], Holne, Purley Downs Road, Purley, Surrey. G. A. Jellicoe, A. W. Kenyon and G. Morgan.

PAUL : WILLIAM FRANCIS EDWARD [R.W.A. School of Architecture, Bristol and the Arch. Assn.], Howbery House, Rockleage, Stoke Bishop, Bristol. G. A. Jellicoe, A. W. Kenyon and C. L. Gill.

WARD : KENNETH [Leeds School of Architecture], High Street, South Milford, Yorks. C. Procter, C. W. Tomlinson and F. L. Charlton.

WRIGHT : JACK HERBERT [The Polytechnic, Regent Street],12 Westergate Road, S.E.2. J. Addison, H. Bennett and J. K. Hicks.

AS LICENTIATES (7)

BELL : ALFRED PHILLIPSON, Senior Architectural Assistant, Liverpool Corporation ; 43 Brockholme Road, Mossley Hill. Liverpool 18. L. Rigby, R. A. Landstein and F. W. Nicholson.

FENDICK : JACK RONALD, Messrs. Benskin's Watford Brewery, Ltd. ; c/o 21 West Street, Stratford-on-Avon. H. Anderson, H. C. Ashenden and J. C. F. James.

GILBERT : RONALD LETHIEULLIER, 3a The Broadway, Woking, Surrey. Applying for nomination by the Council under Byelaw 3 (*d*).

IRWIN : GEORGE FRANCIS, 7a Crendon Street, High Wycombe ; 18 King Edward's Road, Ruislip, Middlesex. Proposed by L. S. Stanley, Prof. A. E. Richardson and H. O. Corfiato.

LORD : HAROLD KINGSTON, 3 Hanley Terrace, Ramsey, Isle of Man. Applying for nomination by the Council under Byelaw 3 (*d*).

SMITH : FREDERICK ARTHUR, Wyvern House, 65 London Road, Leicester ; 51 Haynes Road, Leicester. C. M. C. Armstrong, G. Nott and A. F. Bryan.

WRIGHT : RALPH, c/o 81 Castle Street, Carlisle ; " Tarnfield," Scotby, Carlisle. Proposed by H. E. Scarborough and the Chairman and Hon. Sec. of the Cumberland Branch of the Northern A.A.

ELECTION : DECEMBER 1940

The following candidates for membership were elected in December 1940.

AS ASSOCIATES (19)

AGLEN : MISS ELIZABETH SENGA, Alyth, Perthshire.
CAREY : OLIVER CECIL FRANCIS, Wareham.
CHAPMAN : WALTER WILLIAM, Capt. R.E.
CLARK : JAMES NELSON.
COOPER : ROBERT ERNEST WOOD.
EATON : THOMAS CHARLES RICHARD.
FOX : RICHARD HENRY, Cardiff.
GREGORY : LIONEL ERIC, Blackpool.
JONES : FRANCIS MICHAEL, B.Arch., Liverpool.
LODGE : THOMAS HAROLD, Brighouse.
OEXLE : JOHN SURRIDGE.
PALMER : BRIAN DEVEREUX, Warwick.
RADFORD : MISS ANN MAITLAND.
RAVEN : ARTHUR LIONEL BOULTBEE, Swindon.
ROBSON : GEOFFREY, Dudley.
SMITH : LESLIE THOMAS JOSEPH.
TONG : STEPHEN EDWARD, Winchester.
TRELEAVEN : REGINALD HENRY.
WIGHTMAN : KENNETH LIHOU, Birmingham.

Notices

THE USE OF TITLES BY MEMBERS OF THE ROYAL INSTITUTE

In view of the passing of the Architects Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title " Chartered Architect " after the R.I.B.A. affix. The description " Registered Architect " is no longer necessary.

The attention of members is also drawn to Counsel's opinion on the use of the affixes F., A. and L.R.I.B.A. by unregistered persons printed on page 190 of the June issue of the JOURNAL.

PROFESSIONAL ADVERTISING

The attention of the Practice Committee has been drawn to the fact that the publishers of certain journals are approaching architects for details of their professional activities, which the publishers propose to embody in the editorial columns of their journals. In the case of one particular firm of publishers, several members forwarded to the Institute the proposed article as drafted by the editor and sent to the architects for any additions or amendments the architects desire. In each case the wording of the articles is identical, with the exception of the names and addresses of the firms of architects to whom they were sent.

The Committee desire to warn members generally against this undesirable form of publicity. The acceptance by members of invitations of this nature from firms of publishers is, in the opinion of the Committee, directly contrary to the Code of Professional Practice and tantamount to advertising.

CESSATION OF MEMBERSHIP

Under the provisions of Byelaw 21 the following has ceased to be a member of the Royal Institute :—

As Fellow :
Lionel Francis Crane.

Competitions

COMPETITION FOR DESIGN FOR PAVILION NATIONAL EISTEDDFOD OF WALES—COLWYN BAY, 1941

The Council of the National Eisteddfod offer prizes of £75 and £25 for competitive designs for a standardised pavilion to seat 12,000 with the necessary stage and other accommodation.

The intention is to encourage the planning and design of a modern type of building that can be taken down, transported and re-erected from year to year in various centres.

The Council of the National Eisteddfod have appointed as adjudicators Mr. Percy E. Thomas [*P.P.*] and Mr. T. Alwyn Lloyd [*F.*]. The conditions drawn up by them can be supplied to those who apply to the Secretary, Eisteddfod Office, Colwyn Bay, before 1 March 1941.

MEMBERS' COLUMN

CHANGE OF NAME

MR. EUGEN CARL KAUFMANN [*L.*] announces the adoption by deed poll of the name of EUGENE C. KENT, in which he will continue to practise from his former address at 24 Pentley Park, Welwyn Garden City, Herts (Tel. Welwyn Garden 3284). He is also, at present, sharing an office at 5 Bloomsbury Square, London, W.C.1, with Messrs. Richards & Bright, consulting engineers (Tel. Holborn 0464), where messages will be received and interviews arranged by appointment.

CHANGES OF ADDRESS

IN consequence of war damage, Mr. Julian Leathart [*F.*] has removed his office from Gordon Square to The Cottage, Jenkins Hill, Bagshot, Surrey. (Tel. 281.)

ALL communications for Messrs. Samuel & Harding [*AA.*] should be addressed to Capt. G. H. Samuel, R.E., 32 Porchester Terrace, London, W.2.

MR. CECIL S. BURGESS [*F.*], F.R.A.I.C., has changed his address from the University of Alberta to 801 McLeod Building, Edmonton, Alberta, Canada.

MR. JAMES H. A. BAKER [*A.*] has changed his address to 6 Arundel Road, Birkdale, Southport, Lancs.

FREDERICK GIBBERD [*F.*] has changed his address to :—Country : Northaw, Herts (Barnet 6041). Town : 34 Red Lion Square, W.C.1 (Chancery 8171).